No. 2015-1191

In the
United States Court of Appeals
for the Federal Circuit

CHALUMEAU POWER SYSTEMS LLC

Plaintiff-Appellant,

v.

ALCATEL-LUCENT ENTERPRISE USA,

Defendant-Appellee.

Appeal from the United States District Court
for the District of Delaware, Case No. 1:11-cv-01175-RGA.
The Honorable **Richard G. Andrews**, Judge Presiding.

NON-CONFIDENTIAL BRIEF OF PLAINTIFF-APPELLANT CHALUMEAU POWER SYSTEMS LLC

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Dated: February 5, 2015

Form 9

FORM 9. Certificate of Interest

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

Chalumeau Power Systems LLC v. Alcatel-Lucent Enterprise USA, Inc.

No. 15-1191

CERTIFICATE OF INTEREST

Counsel for the (petitioner) (appellant) (respondent) (appellee) (amicus) (name of party) Appellant certifies the following (use "None" if applicable; use extra sheets if necessary):

1. The full name of every party or amicus represented by me is:

Chalumeau Power Systems LLC

2. The name of the real party in interest (if the party named in the caption is not the real party in interest) represented by me is:

N/A

3. All parent corporations and any publicly held companies that own 10 percent or more of the stock of the party or amicus curiae represented by me are:

Chalumeau Power Systems is 100% owned, indirectly, by Acacia Research Corporation, trading on the NASDAQ Exchange under the ticker symbol ACTG.

4. ☑ The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

See attached sheet

December 22, 2014
Date

Signature of counsel

Robert P. Greenspoon
Printed name of counsel

Please Note: All questions must be answered

cc: _____

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court are:

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing Certificate of Interest was served upon the below-listed counsel for Defendant-Appellee on December 22, 2014, via the Court's CM/ECF system and e-mail:

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TABLE OF CONTENTS

Matter marked as confidential on pages 12-17, 24-27, and 56 concerns the terms of the RPX agreement. Matter marked as confidential on pages 24-27 and 58 discloses sensitive business information of Alcatel. Matter marked as confidential on pages 17-18 and 37-38 discloses confidential deposition testimony. Matter marked as confidential on page 25 discloses sensitive business information of RPX.

TABLE OF AUTHORITIES

Cases Page

Statutes and Rules

Other Authorities

STATEMENT OF RELATED CASES

None.

JURISDICTIONAL STATEMENT

This is an appeal of an $800,000 fee award against Plaintiff-Appellant Chalumeau Power Systems LLC ("Chalumeau") in favor of Defendant-Appellee Alcatel-Lucent Enterprise USA Inc. ("Alcatel"), entered as a sanction under 35 U.S.C. § 285 on November 6, 2014 (A0024-30, A3042). Chalumeau timely filed a notice of appeal on December 5, 2014 (A3046). The district court had jurisdiction under 28 U.S.C. §§ 1331 and 1338. This Court has jurisdiction under 28 U.S.C. §§ 1291 and 1295.

STATEMENT OF THE ISSUES

1. Whether a district court abuses its discretion to base an exceptional case finding on a belief that power never enters a particular accused product structure, when the Power-over-Ethernet products accused of infringement receive power into those exact structures.

2. Whether a district court abuses its discretion to base an exceptional case finding on a patentee's claim constructions that were supported by intrinsic evidence and based on standard canons of claim construction.

3. Whether a district court abuses its discretion to find a case exceptional in the wake of a patentee voluntarily dismissing because of changed economics of the case.

STATEMENT OF THE CASE

A. Power-over-Ethernet Products and How They Work According to Industry Standards

Though dismissed with prejudice on Chalumeau's own motion, this case, when it was alive, involved Power-over-Ethernet (PoE) technology. Chalumeau's Complaint named Alcatel's "Power-over-Ethernet" devices as the products that infringe U.S. Patent No. 5,991,885 (A0053, naming products "including, but not limited to, Alcatel's OmniSwitch 6850 series of Power over Ethernet switches"). Eventually Alcatel admitted that at least 46 of its products qualify as "capable of supporting Power-over-Ethernet (PoE) under applicable industry standards" (A1081, Alcatel interrogatory response). In general, these products are known as "switches" (A1732). Physically, they look like boxes with rows of ports for plugging in Ethernet cables. *See, e.g.*, *Power over Ethernet: Power Management Features and Integration*, WIKIPEDIA, http://tinyurl.com/klgld3o (last visited Jan. 26, 2015). These accused switches operate according to an Ethernet standard known as IEEE 802.3af (*e.g.*, A1734, A1741).

Under this industry standard, the two main pieces of equipment are known as either "PSEs" ("power sourcing equipment") or "PDs" ("powered devices") (A1735-36; 802.3af: IEEE Standard for Information Technology—Telecommunications and Information Exchange between Systems—Local and Metropolitan Area Networks—Specific Requirements, at 27 (June 18, 2003) [hereinafter "802.3af Standard"][1]. Alcatel's relevant switch products play the role of "PSEs." When appropriate, they send both data and power over the same Ethernet twisted pair cable (A1735-36). PDs might include, as examples, VoIP ("voice over IP") telephones, or wireless access points (A1733, A1874). When PSEs supply power to such PDs, this permits consumers to minimize cable clutter and expand their choice of where to place the equipment.

Such PDs must be specially designed to accept power over the Ethernet cable. *See* 802.3af Standard at 27. Under the 802.3af standard, a PSE switch (like Alcatel's) must detect whether a device is, in fact, a specially designed standards-compliant PD (A1735-36). A PD indicates that it is standards-compliant by having a 25 kΩ resistance between the powered pair of pins associated with the RJ-45 socket. 802.3af Standard at 51-52, 80.

[1] Chalumeau cites the 802.3af Standard as a publication, rather than as part of the record. The case ended before the parties had need or occasion to put their infringement proofs or counter-proofs into the district court record. The document was heavily used during discovery, though.

These powered pins are otherwise unused in typical Ethernet data transmissions. *See Power over Ethernet*, WIKIPEDIA, http://tinyurl.com/q7hy2qr (last visited Jan. 26, 2015). If the PSE detects the signature resistance of between 19 and 26.5 kΩ, it will apply power. 802.3af Standard at 51-52, 80. If the signature resistance is not detected, it will not. *Id.* Thus, non-compliant (and possibly delicate) equipment will not be harmed by the incorrect application of raw power over what is otherwise a pure data line.

B. The Patent-in-Suit and its Embodiments that Detect Whether Network Devices Can Receive Power, and Send Power if Appropriate

The ’885 patent describes advances in network systems that detect the presence of remote devices and, if of the proper type, supply power to them. It is entitled, “Method and apparatus for detecting the presence of a remote device and providing power thereto” (A0032). As explained broadly in the ’885 patent specification:

> The network system of the present invention does not provide the electrical power to the interface connector unless a desired device is connected. With this system, the same interface connector supports a plurality of network protocols, such as Ethernet 10Base-T, 100Base-TX, or Token Ring. The desired device may run these or another kind of networking protocols.
>
> Through a combination of circuitry and wiring arrangement, the present invention provides a low cost system

> that allows a first device, connected to one end of the twisted-pair cable, to detect a desired device connected to the other end of twisted-pair cable, and provide electrical power to it. The desired device receives the electrical power from the twisted-pair cable without physically attaching to the main body of the system for electrical power supply.

(A0049, '885 patent at 13:36-51). The Field of the Invention also discusses the invention broadly, as follows:

> This invention relates to networking systems, and more particularly, to network hubs and network interface adapters for automatically and continuously detecting the presence of a remote adapter coupled to a network twisted-pair cable, providing electrical power from a network hub to the remote adapter via the network twisted-pair cable, creating a multi-protocol networking system, and automatically connecting the remote adapter to the appropriate network hub.

(A0043, '885 patent at 1:8-15). Thus, the specification highlights the presence of a broadly-named "remote adapter," "network interface adapter," or "desired device" having the proper "circuitry and wiring arrangement" for triggering the delivery of power.

Chalumeau asserted that Alcatel's accused products infringe claims 8 and 9 of the '885 patent. Those claims broadly claim the inventive network system as follows (paragraphs broken out for clarity):

> 8. A network system comprising:
>
> a plurality of *user interface connectors* each adapted for coupling to a remote device; and
>
> a network hub coupled to the plurality of user interface

connectors

> for communicating data between remote terminals coupled thereto,
>
> for identifying the operational protocol of a coupled device that indicates the type of device and communicating with said coupled remote device in said identified operational protocol,
>
> and for identifying the presence of an *adapter of a first type* coupled to at least one of the plurality of user interface connectors and continuously providing electrical power to the adapter according to the type of device in response to the identified presence of said adapter
>
> and stop providing the electrical power to the adapter in response to no identified presence of the adapter.

9. The network system of claim 8 wherein the operational protocol may be an Ethernet protocol.

(A0049, '885 patent at 14:27-44, emphasis added).

The order on appeal is the September 12, 2014 exceptional case order that preceded the November 6, 2014 monetary fee judgment. It focused on the emphasized terms ("user interface connectors" and "adapter of a first type") (A0027-29). Relying on a prior claim construction, the exceptional case order purported to construe these limitations by importing features from the preferred embodiment (the details of the district court's methodology are discussed in section D). Therefore, it will be helpful to understand these structures as they appear in the preferred embodiment.

In the preferred embodiment, the inventors taught the use of otherwise-unused pins for RJ-45 connectors to transmit power to remote powered devices. For example, the inventors included Table II, which describes how pins of the "hub user connector 208" might be used in two distinct phases of operation (A0049, '885 patent at 13:14-28). In the first phase (labeled the "detection phase"), pins 4 and 5 operate in a "Pass through" mode (*Id.*). In the second phase (labeled the "connection phase"), pins 4 and 5 operate in "Electrical power supply" mode (VCC and GND, respectively) (*Id.*).

TABLE II

Pin of the hub user connector 208 and 308	Interface at detection phase	Interface at connection phase
1	Pass through	Data signal
2	Pass through	Data signal
3	Pass through	Data signal
4	Pass through	Electrical power supply (VCC)
5	Pass through	Electrical power supply (GND)
6	Pass through	Data signal
7	Presence request signal	General purpose signal
8	Presence detection signal	Presence signal

The specification notes that the same Table II "describes the signals present at the interface of the *user interface connector 204* at the detection

phase and at the connection phase" (A0049, '885 patent at 13:10-12, emphasis added). This means that the same table thus simultaneously describes both "hub user connector 208" (named in the table itself) and "user interface connector 204" (named in the lines preceding the table). Because of this, the specification does little to nothing to distinguish between the functions of the "user interface connector 204" (words used to describe the first limitation of claim 8) and "hub user connector 208" (words not used in claim 8) (A0049, '885 patent at 14:28-29). At most, the specification notes that simple conductive wiring lies between them (the "twisted pair 205"), although nothing precludes such wiring being infinitesimally short or entirely contained within one equipment housing (A0045, '885 patent at 5:29-35, A0034). In actuality, the discussion of Table II strongly suggests that the specification (or at least part of it) treats items 204 and 208 interchangeably.[2]

It is notable that the specification never suggests or implies that "user interface connectors 204" must, in all cases, be physically separate from the network hub to which they are coupled. Reference numeral 308 is shown in

[2] Later in this Brief, Chalumeau will demonstrate that the district court likely erred in construing that "user interface connectors" must always be "separate" from the "network hub" claim element, despite the complete absence of terms of separation within claim 8. At the very least, Chalumeau's arguments to the contrary were reasonable and nonfrivolous.

Figure 3 as another connector on a hub within a multi-hub embodiment (A0035, '885 patent at Fig. 3). At one point, the patent labels item 308 as a "hub user interface connector" (A0046, '885 patent at 8:31-34). It follows that, in this embodiment, the "user interface connector" (language of claim 8) resides on a "hub" ("*hub* user interface connector 308"). This is further evidence that nothing in the patent excludes the possibility of a "user interface connector" residing on a "hub." Indeed, the part of the patent just cited requires it.

The specification illustrates and describes the embodiments in the context of three distinct network computers, labeled 212-1, 212-2 and 212-3 (A0034, '885 patent at Fig. 2).

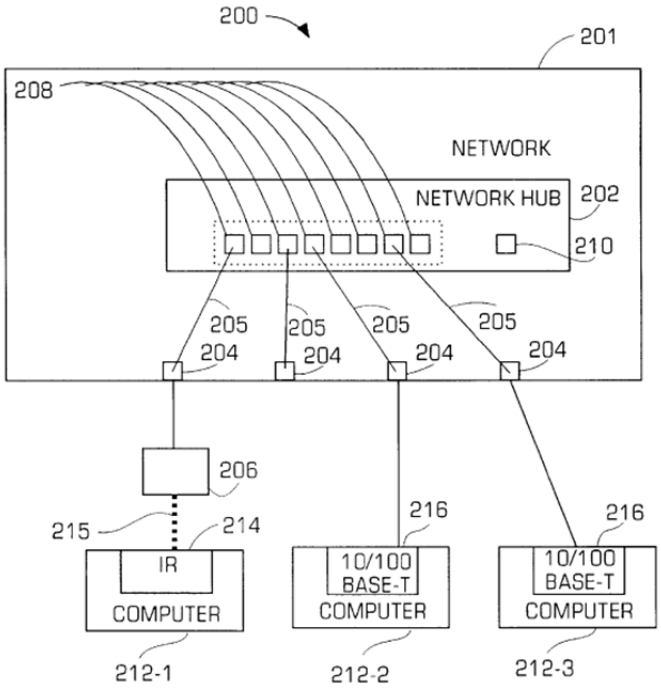

FIGURE 2

The first one (212-1) connects to the network hub 202 wirelessly, through adapter 206, user interface connector 204, twisted pair 205 and hub user connector 208. The second and third (212-2 and 212-3) use a wire connection to the network hub 202, through computer interface 216 ("10/100 Base-T"), user interface connector 204, twisted pair 205 and hub user connector 208.

The middle of the specification refers to an example "adapter of a first type" that receives power as an infrared (or wireless) adapter 206 (A0044, '885 patent at 4:17-19, A0047, '885 patent at 10:8-13). But other more encompassing parts of the specification (quoted earlier) explain that the "desired device" that receives power might also "support[] a plurality of network protocols, such as Ethernet 10Base-T, 100Base-TX, or Token Ring" and thus be hard-wired (A0049, '885 patent at 13:37-43). Thus, the specification does not teach that power-delivery can only go to IR or wireless devices. Indeed dependent claim 11 *specifies* wireless protocols (A0049), thus implying its parent claim must be broader (wired plus wireless) under common claim differentiation principles.

The patent specification also describes "adapters" that do not trigger power delivery as adapters of a second or third type (A0048, '885 patent at

12:9-14, 12:20-43).[3] Linguistically, this means that something called an "adapter" need not, in all cases, be for infrared or wireless communication in order to have that name. The specification (like claim 8) does make clear that an adapter is of a "first type" if it triggers delivery of power, and is of another type if it does not (A0047, '885 patent at 10:8-13; A0048, '885 patent at 12:9-14, 12:20-43).

Finally, as mentioned before, the '885 patent includes various "connectors" within its detailed description of the preferred embodiments. These "connectors," in the examples, are simple RJ-45 connectors (plugs and/or sockets) (A0045, '885 patent at 5:26-28). Notably, while the patent does not expressly name the preferred embodiment's "adapters" (seen in detail in Figs. 6a, 6b and 6c) as modifications to RJ-45 technology within a device, that is exactly what they are (A0039, '885 patent at Fig. 6a, "adapter of the first type" 602-1 shown on the right side with added circuits coupling to RJ-45 pins 4, 5, 7 and 8). In the case of "adapters of the first type" (*e.g.*,

[3] Later in this Brief, Chalumeau will demonstrate that the district court likely erred in construing that "adapter of a first type" must always be wireless, despite the drafter's obvious and deliberate omission of such a limitation from the words of claim 8. Chalumeau will also demonstrate that, contrary to district court misimpressions, "powered devices" under the Power-over-Ethernet" standards (PDs of PoE) contain the claimed adapters, since they have specially adapted circuitry that changes the RJ-45 connectors to permit PD detection by PSEs.

Fig. 6a), modified RJ-45-coupled circuitry within a *powered* (that is, "*desired*") device permits its detection as a powered device.

C. Chalumeau's Agreement with RPX, and Negotiated Freedom to Bring Suit Against Alcatel-Lucent

Given how strongly the '885 patent implicates the 802.3af Standard, it is no wonder that Chalumeau achieved significant pre-suit licensing success. In 2011, a few months before commencement of this case, Chalumeau sold license rights to RPX Corporation [redacted][4] RPX is what is known as a "defensive aggregator." It acquires rights that enable it to sublicense specified portfolios to its membership. It also seeks option rights that allow it to purchase license rights for nonmembers under a prenegotiated schedule. That is what RPX did here [redacted]

RPX uses its option rights to market its "aggregator" services to nonmembers to enlarge its membership rolls. RPX also uses agreements such as this one to end litigation on behalf of its membership. RPX, through this agreement, purchased rights for, and excused infringement by, [redacted].

[4] There were also numerous party-to-party licenses, effectively licensing all of the major industry players in the Power-over-Ethernet space before Alcatel held out and litigated.

Under the complex terms of the RPX agreement, [redacted]. As characterized in the RPX agreement, RPX expressly contemplated that Chalumeau reserved the right to [redacted]

[redacted]

(*Id.*). The RPX agreement has an effective date of September 30, 2011 (A2329). On November 29, 2011 [redacted], Chalumeau filed separate suits against Allied Telesys, Inc.[5] and Alcatel-Lucent S.A. (and its subsidiaries), [redacted]

Section 3(k) [redacted] makes clear the reasoning why [redacted] are defined. It states the following:

[redacted]

[5] Allied Telesys settled early, recognizing the applicability of the '885 patent just as many others in the industry had (A1122-23).

(A2322) (emphasis added). In plain English, absent payment, Chalumeau could

Section 3(k)'s language thus makes it clear that RPX expressly agreed that Chalumeau could sue Alcatel-Lucent S.A.

. This means that Chalumeau and RPX intended not to grant any license (express or implied) to Alcatel based on the RPX agreement. The very face of the agreement demonstrates such intent.

Despite the efforts of RPX and Chalumeau to prevent Alcatel from obtaining license rights through the RPX agreement, Alcatel tried to advantage itself by its terms. Late in the case, it advanced a license / exhaustion defense. Thus, whether and how the RPX agreement might transfer license rights to Alcatel *through its component suppliers* (who might be RPX members) became relevant during district court proceedings.

In district court briefing, Alcatel pointed out that RPX had the right under the agreement (though not the obligation) [redacted]

This power [redacted] (if ever invoked by RPX) had limitations. Primarily, it was limited to the power [redacted] Thus, Alcatel's potential to benefit from any patent exhaustion or third party license rights depended on whether its component supplier [redacted]

In turn, under the RPX agreement, [redacted] had a deliberately narrow definition:

[redacted]

(*Id.*, emphasis added).

While this language is turgid and lawyerly, it is not incomprehensible. It means that an item cannot be considered a [redacted] unless [redacted] Put simply, [redacted] This language makes sense in the context of RPX's business model. RPX membership would only have need or desire for

[6] [redacted] Thus, all limitations in the meaning of the latter term become incorporated into the meaning of the former.

license rights that extinguish direct infringement liabiity, or potential indemnity obligations to customers.

Thus, to show entitlement to an implied license through sourcing of a component from a [redacted] RPX member, it would not be enough for Alcatel to show that [redacted] The RPX agreement does not give rights to RPX membership for such piecemeal solutions. [redacted]

D. Proceedings in this Case Before the Exceptional Case Order

Before the exceptional case order on appeal, the parties took infringement discovery, litigated claim construction, and disputed whether Alcatel had a right to amend its answer to add a license and exhaustion defense.

1. The Record Supported Chalumeau's Contentions that Remote Devices Received Power Over Their Modified RJ-45 Connectors

Concerning infringement, Alcatel's corporate designee confirmed that [redacted]

(A1874, 101:2-23, emphasis added). This comported with Chalumeau's previously-served infringement contentions, which pointed out that PDs coupled to Alcatel's accused switches contain the claimed "adapter of a first type" in circuitry coupled with their RJ-45 ports, thus confirming that the switches perform the function of identifying such adapters of a first type (A1733-34).

2. Chalumeau Presented Claim Construction Positions That Relied on the Intrinsic Evidence and Invoked Standard Canons of Claim Construction

Concerning claim construction, the district court adopted some, but not all, of Chalumeau's contentions. While Chalumeau would normally seek a ruling that all of its constructions were "correct," what remains at issue

here is whether they relied on intrinsic evidence and were based in standard canons. They did and they were. The record reveals that each side (Chalumeau *and* Alcatel) used arguments that invoked the intrinsic record, and each side (Chalumeau *and* Alcatel) applied standard canons of claim construction. Though the issues were difficult and hard-fought, neither side argued frivolously.

Identifying an Adapter of a First Type. The district court eventually held that an adapter of a "first" type must be a "wireless" adapter, thus importing a feature of one embodiment into the construction of that term (A1946). Chalumeau had earlier argued, but the district court overlooked, that the term "first" in this context was a patent-drafting convention that simply sets the modified term apart as distinct from others (A1363, citing authority). Chalumeau had also argued that the patent teaches the identification of various types of adapters, including wired ones, such as for Ethernet, 10BaseT, 100BaseTX, 100BaseT4, and Token Ring (A1362). Chalumeau argued that the specification "identifies" all of these, plus wireless ones, which is all the pinpointed claim language requires (A1362-63). The "identification," as such, need not be related to the application of power, a feature addressed elsewhere in the claim (A1367-68).

Chalumeau also noted that the relevant claim language did not contain the limitation of "wireless" (instead it says "first"), signifying the drafter's attempt to maintain breadth (A1368 n.28). Chalumeau also asserted to the district court that to accept Alcatel's contention would improperly import limitations from the preferred embodiment (A1363). Within its arguments, Chalumeau cited numerous parts of the claim language and the patent specification for support (A1362-63, A1367).

In response, Alcatel argued that the examples in the specification in which the "first" type of adapter was infrared or radio-frequency wireless amounted to both a definition and explicit disclaimer (A1363). However, Alcatel never supported its argument with reference to any part of the specification that constituted either a definition or a disclaimer, but rather solely instances in which the specification described the detailed workings of one or more example embodiments (A1363-65). In addition, Alcatel failed to address the parts of the specification supporting that even wired devices might be "desired devices" that receive power under the broader teachings of the specification (*e.g.*, A0049, '885 patent at 13:36-51).

In the end, the district court rejected Chalumeau's construction that "first" in the phrase "adapter of a first type" simply means an adapter of a "particular" type (A1946). The district court even singled out for criticism

this Chalumeau contention at the hearing on Alcatel's exceptional case motion (A0027-28). The district court apparently believed it was the "worst" claim construction contention it had experienced in over 40 patent proceedings (A0028, A2587-88). By then, of course, the district court had itself adopted a construction in conflict with the canon that limitations from the preferred embodiment should not be imported into the claims. Whether correct or not (which this Court need not decide), Chalumeau's arguments were grounded in the intrinsic record, and in standard canons of claim construction.

User Interface Connectors. The district court also agreed with Alcatel that the claimed "user interface connectors" must be "separate" from the network hub (A1946). Thus, the district court overlooked that the intrinsic record does not define them as "separate," the claim contains no connotation that they are "separate," and the intrinsic record sometimes considers such connectors to be either on the hub or interchangeable with the "hub user connectors" which are undisputedly on the hub (A0034, A0045, '885 patent at 5:3-11, A0046, '885 patent at 8:31-34, A0049, '885 patent at 13:10-28).

Citing numerous parts of the intrinsic record, Chalumeau argued that it would be improper to add an unclaimed "separateness" requirement, imported as a limitation from one of the embodiments (A1333, A1339-40,

citing authority calling it a "cardinal sin"). Chalumeau pointed out that nothing in the patent specification mandated that the network hub and user interface connectors must be separate, as they were connected and associated by coupling, and are therefore clearly not separate (A1333-34). Chalumeau also pointed out the lack of clarity of any construction that implied these connectors must be "separate" from the hub, since the word "separate" has many potential meanings (A1334). Chalumeau also pointed out the "hub user interface connector 308" example as one mandating hub-placement for such an item – in as many words (A1339). Chalumeau also pointed to a part of the specification that interchangeably described item 204 (the purportedly separate-from-the-hub "user interface connector") as "hub user connectors 204," and thus on the hub (*Id.*).

In response, Alcatel argued that "separateness" was required to preserve sense and meaning for the terms "user interface" within the phrase "user interface connectors" (A1334, A1337). Alcatel also pointed out that in the embodiments, numerous modifiers existed for the term "connector," including "hub user," "up-link" and "pass-through" (A1335). Alcatel asserted that the patent "defined" the term "user interface connector" as having a "specified location," solely because of where the corresponding reference numeral 204 was depicted in the Figure 3 example of the patent

(A1336). Alcatel also asserted that the fact that "user interface connectors" were "coupled" to the "network hub" clearly indicated that they were distinct from, but could be connected to, the network hub (A1337-38).[7] Alcatel also dismissed the two instances of hub-located "user interface connectors" described in the patent specification as a "mistake" that cannot be relied upon for claim construction (A1336 n.7).

As before, the district court rejected Chalumeau's construction and adopted Alcatel's, requiring "separateness" between the claimed connector and network hub (A1946). Again, whether correct or not, Chalumeau's arguments were grounded in the intrinsic record, and in standard canons of claim construction.

3. Alcatel's License Defense, Once Added, Changed the Economics of the Case and Led Chalumeau to Dismiss Voluntarily, But Had Many Obvious Shortcomings

In March 2013, Chalumeau timely produced the RPX agreement to Alcatel (A1777, A1909). In the ensuing four months – some of the most active months of fact discovery in the case – Alcatel apparently did nothing with it. Meanwhile, Chalumeau made efforts to take discovery on what components provided what functionality within Alcatel's accused products

[7] Chalumeau replied to this point by explaining that things that are "coupled" are necessarily not "separate" (A1340, citing authority that "coupled" connotes "directly united, joined or linked together").

(A1070). That discovery revealed that many accused products (the district court record does not show how many) use components manufactured by a company who is ***not*** a member of RPX – [redacted] (A1083).

At least some accused products use components from [redacted] that are unrelated to Power-over-Ethernet (A1778-79, A1909 n.1).[8] Though Chalumeau was on notice that these companies were RPX members, RPX never told Chalumeau that [redacted] Even Alcatel has never asserted that Chalumeau had any knowledge from RPX of [redacted] (A2600-01, A1954-55, suggesting that Chalumeau's pre-suit investigation should have included evaluating Alcatel's future affirmative defense by contacting RPX for information, notwithstanding the pre-suit absence of any information from Alcatel linking component suppliers with component functionality).[9]

In August 2013, Alcatel subpoenaed RPX to learn whether or not it had granted any of its membership (such as [redacted])

[8] Even Alcatel apparently knew that its defense was only a ***partial*** license defense. Alcatel's briefing admitted that [redacted] And, the text of its pleading merely states that [redacted] These caveats would not exist if license rights extinguished ***all*** of Chalumeau's case.

[9] Alcatel has doggedly maintained the identity of its component suppliers and their linked functionality under the cloak of confidentiality via the discovery protective order.

[redacted] (A0014-15, ECF No. 110). RPX responded with a three-page unsworn hearsay document, apparently not created in the ordinary course of business but to respond to the subpoena, indicating that as of its date (September 25, 2013) [redacted]. Even this questionable document from RPX was silent about any rights prior to that date.[10] And even Alcatel recognized that it still had yet to collect underlying documents from RPX that reflected [redacted] (A1780 n.4). Coincidentally, Chalumeau took the corporate testimony of Alcatel on the same day (September 25, 2013) on topics related to component suppliers and component functionality (A1868, A1913). Alcatel did not convey the putative list of [redacted] until September 27, 2013, after this deposition was complete (A1779).

After Chalumeau had taken all of its technical corporate depositions of Alcatel, Alcatel moved in October 2013 for leave to amend to add a license and exhaustion defense, based on the RPX agreement and this

[10] [redacted] Without any indication of a [redacted] given to [redacted], Alcatel very well may have lacked adequate proofs at trial to support any pre-September 25, 2013 damages limitation, by any of its accused products.

incomplete record (A0016-17, A1775). Chalumeau opposed (A0018, A1908-09). Alcatel's motion rested on the questionable premise that [redacted] On November 5, 2013, in a docket text entry reflecting an oral order, the district court allowed the amendment, effectively overruling Chalumeau's procedural and merits-based objections. Alcatel then formally amended, adding the new defense into the case on the same day (A0018).

In subsequent weeks, Alcatel produced a multitude of documents, purportedly to help establish its use of RPX-licensee components. Though not in the district court record, RPX also made a late production of its 2010 member agreements with [redacted]. These documents did not [redacted]

Even with this October 2013 amendment, Alcatel never asserted that the scope of this defense (if successful) would subsume all accused products, all time frames, and all calculation of damages. Its scope was limited to

[redacted] components, and did not address (*e.g.*) [redacted]-supplied components. Also, the defense (such as it was) required a mountain of proofs, all of which were under Alcatel's burden:

(1) proof that an accused product contains a component that would, of itself, [redacted] (*see* Statement of the Case, section C, above);

(2) proof that the supplier of such a component [redacted]; and

(3) (if Alcatel were to assert complete exhaustion of all of Chalumeau claims), proof that each and every accused product has such a component from such a licensed source.

Even though the defense had shortcomings, Chalumeau had to face economic reality. Its existence would be yet another flashpoint of disputes and expenditure of resources in an already highly contested case. After making additional unsuccessful efforts to resolve the case entirely through settlement, Chalumeau moved to dismiss its own case voluntarily on January

28, 2014. The district court granted the motion, but permitted Alcatel to seek fees under 35 U.S.C. § 285, which it did (A2027).

E. The Exceptional Case Order

Though it did not adopt many of the arguments Alcatel presented, the district court granted Alcatel's fee motion in a seven-page order on September 12, 2014 (A0024-30). Within the order, the district court named six reasons for determining why this case was "exceptional" and warranted Chalumeau paying Alcatel's reasonable attorneys' fees:

1. That "there was never any argument that an RJ45 connector was capable of receiving power," such that "even under Chalumeau's proposed claim construction," its infringement theories were not reasonable (A0026) (*i.e., a purported failure of proof*).
2. That "even a cursory review of the patent identifies RJ-45 connectors as separate from adapters," and the "patent repeatedly references user interface connectors as being distinct from interface adapters [so that no] reasonable person reading the '885 patent would equate an RJ45 connector [on a powered device] with the claimed adapter" (A0025-26) (*i.e., a purported claim construction error*).

3. That it was frivolous to propose that an "adapter of a first type" be construed as an "adapter of a particular type," since "I noted that such a construction would read out [sic: include] adapters of a 'second' and 'third' type, and that the specification itself teaches away from powering a wired adapter" (A0027-28) (*i.e., a purported claim construction error*).

4. That it was also frivolous to propose that the "user interface connectors" had a scope that included connectors located on (instead of separate from) the network hub (A0028-29) (*i.e., a purported claim construction error*).

5. That Chalumeau's pre-suit investigation chart contains claim limitation groupings that are "far too broad, encompassing multiple disputed terms in each group" and "lumps so many limitations together [that it] does not demonstrate an adequate investigation into whether the accused device infringes each and every claim limitation" (A0027) (*i.e., a purportedly inadequate pre-suit investigation*).

6. Finally, that Chalumeau "was the one who executed the [RPX agreement], before this lawsuit was filed [and] had it from day one," and that its voluntary dismissal reflects that "Alcatel failed to

> fold before Chalumeau lost its leverage," not that "the legitimate 'economics of the case' [] have changed" (A0029) (*i.e., a purported bad faith-motive behind voluntarily dismissing*).

The district court summarized its decision with the following caustic recharacterization of Chalumeau's conduct:

> Chalumeau filed a frivolous lawsuit with the sole purpose of extorting a settlement fee. When it realized that was not going to happen, it dropped the case. Chalumeau's entire litigation strategy was devoted to stringing out the case in the hopes that Alcatel would incur fees while Chalumeau would not. Chalumeau did not even disclose an expert until November 8, 2013, days before fact discovery ended. (D.I. 175 at 26:4-6). This allowed Chalumeau to keep its costs low while forcing Alcatel to spend considerable sums defending a frivolous lawsuit. Such behavior is exceptional.

(A0030). Since each and every one of these bases and characterizations is incorrect, Chalumeau appealed.

SUMMARY OF THE ARGUMENT

Alcatel convinced the district court in several instances to commit the "cardinal sin" of claim construction – import unrecited limitations from the specification into the claims. Then it doubled down, convincing the district court during fee proceedings not only that it was right, but that any attempt to stop the district court from committing this "cardinal sin" must have been "frivolous." But this ruling never stopped to consider the central question when it comes to deciding frivolousness – were the Chalumeau claim

constructions supported by intrinsic evidence and based on standard canons of claim construction? They were, but the district court did not perceive that, or even ask the right questions.

With the district court so inflamed, it piled on more reasons to punish Chalumeau. It misunderstood this Power-over-Ethernet case so badly that it ruled that there was "never any argument" that a powered device's Ethernet connector is "capable of receiving power." Thus, the district court overlooked the lengths to which Chalumeau went to extract this very admission from Alcatel's designee. And power obviously goes over Ethernet cables anyway in this technological context. For the district court to think otherwise defies explanation.

The district court closed its analysis with an upside down understanding of Chalumeau's gesture of voluntarily dismissing this still-meritorious case. It should have appreciated Chalumeau's reaction to the changed economics of the case after Alcatel's introduction of a flimsy, yet sure to be contentious, license defense. But instead, it transformed Chalumeau's overture that likely saved the parties and the Court from the costs and burdens of trial into an "extortion" narrative, somehow recharacterizing its praiseworthy decision to dismiss into a signpost that Chalumeau never intended to vindicate its claims from the outset.

Each and every reason cited in support of the exercise of discretion to find this case exceptional constitutes error. That any one of them was wrong would at least justify vacating and remanding. That all of them are wrong merits reversal.

ARGUMENT

Once this Court finds the district court's reasons for finding the case exceptional to be devoid of proper foundation in fact or law, it should reverse. Chalumeau presented no frivolous arguments. Still-meritorious cases cannot be characterized as "extortion." And Chalumeau did the right thing in laying down its sword. As this Court and others encourage, it voluntarily dismissed after the economics changed. Such conduct should be praised, not punished.

I. STANDARD OF REVIEW

A. Exceptional Case Standards

Though the Supreme Court recently abrogated clear error review of "exceptionality" findings in favor of the abuse of discretion standard, this Court's observations in *iLOR v. Google* still ring true today:

> The sanctions imposed under § 285 carry serious economic and reputational consequences for both litigants and counsel, and '[d]espite our reluctance to second-guess the judgment of trial judges who typically have intimate knowledge of the case, we have the responsibility, in light of the substantial economic and reputational impact of such sanctions, to examine the record

> with care to determine whether the trial court has committed clear error in holding the case exceptional or has abused its discretion with respect to the fee award. Where we have found error, we have reversed exceptional case findings and vacated attorney fee awards based on those findings.'

iLOR, LLC v. Google, Inc., 631 F.3d 1372, 1376 (Fed. Cir. 2011) (citing *Medtronic Navigation, Inc. v. BrainLAB Medizinische Computersysteme GmbH*, 603 F.3d 943, 953 (Fed. Cir. 2010)).

This Court now reviews both the "exceptionality" finding, and the decision to award attorneys' fees, under an abuse of discretion standard. *Highmark Inc. v. Allcare Health Mgmt. Sys., Inc.*, 134 S. Ct. 1744, 1748 (2014). Even under *Highmark*, a district court abuses its discretion when it bases its "exceptional case" finding on an error of law or fact. *Id.* at n.2.

In deciding whether a case is "exceptional," the district court should simply consider whether it "stands out from others with respect to the substantive strength of the party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in which the case was litigated." *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749, 1756 (2014). Such consideration must include analysis of "the totality of the circumstances." *Id.*

B. Claim Construction Frivolousness Standards

In *iLOR*, this Court ruled that an "exceptional case" finding must be reversed when founded on a mistaken district court belief that a claim construction was frivolous. 631 F.3d at 1379 The logic of this holding survives *Octane Fitness* and *Highmark*. A mistaken belief of frivolousness constitutes an error of law (and possibly fact) that removes such belief as a proper basis for the exercise of discretion.

This Court's precedents guide the determination of whether a claim construction is frivolous. In particular, if reasonably based on intrinsic evidence and standard canons of claim construction, a litigant's claim construction will not be considered frivolous, even if wrong.

> In light of the claim terms, specification, and prosecution history, we believe that iLOR could reasonably argue for the claim construction that it proposed. As with many cases, this suit presents a routine question of claim construction in which the issues are often complex and the resolutions not always predictable. As this court has recognized, patent claim construction can be difficult:
>
> > Claim interpretation is not always an exact science, and it is not unusual for parties to offer competing definitions of even the simplest claim language. In this case, however, it is not for us to determine whether [plaintiff's] pre-filing interpretation of the asserted claims was correct, but only whether it was frivolous. ***We conclude that it was not, for [plaintiff's] claim interpretation, while broad, followed the standard canons of claim***

> ***construction and was reasonably supported by the intrinsic record.***
>
> *Q-Pharma, Inc. v. Andrew Jergens Co.*, 360 F.3d 1295, 1301 (Fed. Cir. 2004) (parenthetical omitted).

iLOR, 631 F.3d at 1379 (emphasis added); *see also ERBE Elektromedizin GmbH v. Canady Technology LLC*, 629 F.3d 1278, 1284, 1292 (Fed. Cir. 2010) (finding claim construction not frivolous even though wrong, when based on arguments for ordinary and customary meaning, the doctrine of claim differentiation, the impropriety of assuming disclaimers, and the impropriety of importing qualitative limitations); *Precision Links Inc. v. USA Prods. Group, Inc.*, 800 F. Supp. 2d 706, 712 (W.D.N.C. 2011) ("A claim interpretation is not frivolous where it 'follow[s] the standard canons of claim construction and [is] reasonably supported by the intrinsic record.'") (quoting *Q-Pharma*); *cf. Raylon, LLC v. Complus Data Innovations, Inc.*, 700 F.3d 1361, 1369 (Fed. Cir. 2012) (finding claim construction frivolous because it was "contrary to all the intrinsic evidence and [did] not conform to the standard canons of claim construction": namely, frivolous to argue that "pivotally mounted on said housing" means "pivotally mounted relative to the user's view").

II. THE DISTRICT COURT'S EXCEPTIONAL CASE FINDING RESTS SOLELY UPON ERRORS OF FACT AND LAW AND SHOULD BE REVERSED

Scrutinizing the district court's reasons for exercising discretion shows each and every one to lack a factual or legal basis.

A. Power-over-Ethernet Device Input Connectors Receive Power, and the Court's Factual Finding that "There Was Never Any Argument" by Chalumeau that They Do Showed a Profound Misunderstanding of This Case

First and most obviously, the district court's exceptional case finding rests on a mistaken understanding of the very heart of this suit – interoperation of Power-over-Ethernet Powered Devices with Power Sourcing Equipment. The district court reasoned incorrectly that infringement could not exist even under Chalumeau's proposed claim construction for "adapter of a first type" (A0026). It mistakenly believed that "there was never any argument that an RJ45 connector was capable of receiving power" (*Id.*).

Overlooking that the parties had not, by then, briefed the issue of claim application (*i.e.*, infringemement), the district court addressed this issue because Chalumeau's initial infringement contentions named an "RJ-45 adapter" that allows PD detection[11] as meeting this limitation (A1733-

[11] These early infringement contentions would have been supplemented by an expert report naming the specific detection circuitry within this RJ-45

34). Of course, such contentions were for ***discovery*** purposes, not for listing out trial proofs. Even so, those same contentions also named why the IEEE 802.3af standards that those devices practice supported this contention, and that they pass power over the RJ-45-connected Ethernet cable:

> The 802-3.af Standard specifies that PSE (Power Sourcing Equipment) that operates in accordance with the Standard, including the Accused 6200 Series Products, must be capable of supplying power to network devices ***over the same cabling used to carry network data.*** (*See, e.g.,* IEEE 802-3.af-2003, Section 33.1.) The Standard further provides that "the PSE's main functions are to search the link section [user interface connection] for a PD [Powered Device], optionally classify the PD, supply power to the link section (only if a PD is detected), monitor the power on the link section, and scale power back to the detect level when power is no longer requested or required. An unplugged link section is one instance when power is no longer required." (*Id.*, Section 22.3).

(A2367, emphasis added).[12] If there were any doubt, Chalumeau dispelled it with extraction of admissions on this very point from Alcatel's designee:

[redacted]

adapter – the 25 kΩ resistance – that provides PD detectability. However, Chalumeau voluntarily dismissed the case just before expert reports were due.

[12] While only the contentions for the 6200, 7000 and 9000 series appear in the district court record (A1731-42, A2363-68), contentions for all other product families were similar.

[redacted]

(A1874, 101:14-23, emphasis added).

The district court's peculiar and easily-refuted statement is relevant in one way, however. It shows the extent to which Alcatel's exceptional case arguments disturbed the district court's ability to distinguish fact from hyperbole. As shown above, infringement could (and does) exist under Chalumeau's proposed claim construction. Ample proof at trial (if not stipulations and admissions) would have supported that power passes over Ethernet cabling from the accused Alcatel switches into the RJ-45 adapters of Powered Devices.

B. Chalumeau's Claim Constructions, Labeled as "Frivolous" by the District Court, Were Actually Based On the Intrinsic Record and Standard Canons of Claim Construction

The district court's errors go beyond misimpressions about the fundamentals of Power-over-Ethernet. The district court mistakenly found two of Chalumeau's claim construction positions frivolous – "adapter of a first type" (*i.e.*, the thing at the powered device that must be identified by the network hub, according to claim 8) and "user interface connectors" (A0027-29). However, the district court overlooked the strong, if not dispositive, support for Chalumeau's positions.

1. Legitimate Analysis Supported that "Adapters of a First Type" May Include the RJ-45 Connectors As Built Into Powered Devices, and Supported a Construction that They Be of a "Particular" Type that Need Not Be Wireless

The district court's evaluation of Chalumeau's "adapter of a first type" construction overlooked its support in the intrinsic record and standard canons of claim construction.

i. Nothing Precluded an "Adapter" from Using RJ-45 Connectors

The district court's first critique was that Chalumeau did not advance a claim construction having a negative limitation, *i.e.*, excluding the possibility of suitably designed or coupled RJ-45 adapters within the scope of the "adapter" language. As stated by the district court, "a cursory review of the patent identifies RJ-45 connectors as separate from adapters. The patent repeatedly references user interface connectors as being distinct from infrared adapters, which are given the number 206. No person reasonably reading the '885 patent would equate an RJ45 connector with the claimed adapter" (A0026, citations to the patent omitted).

Most telling, even Alcatel did not impose such a negative limitation (*i.e.*, excluding RJ-45 adapters). Alcatel's position was that the term should be construed as: "A device that provides a compatible connection between the network hub and remote device at the physical layer" (A1944).

Chalumeau's was not very different: "A network interface device that is capable of receiving electrical power and data from the network hub" (*Id.*). So neither party advanced the negative limitation that, in complete hindsight, the district court appeared to expect – exclusion of RJ-45 connectors. In fact, the district court ruled mostly in favor of Chalumeau during the actual claim construction proceedings: "a network interface device that is capable of receiving data from the network hub and that connects the network hub to a remote device" (A1947).[13]

The district court's after-the-fact critique has another obvious flaw. It appears to require, for the infringement test, comparison between the features of the preferred embodiment and the accused product. This Court has long rejected such analyses as incorrect. *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) ("Infringement, literal or by equivalence, is determined by comparing an accused product not with a preferred embodiment described in the specification, or with a commercialized embodiment of the patentee, but with the properly and previously construed claims in suit."). Moreover, the district court failed to point to any part of the intrinsic record that calls for such a negative

[13] The district court left out the power-receipt aspect of Chalumeau's construction because the term was a generic "adapter" (some of which in the patent do not receive power), rather than an "adapter of a first type" (which does receive power) (A1945).

limitation. As this court recently restated, a district court commits reversable error to impose an unstated negative limitation when nothing in the claims or written description limits claim scope to exclude a specification-named instrumentality that happened not to be the one used in the specification example for that limitation. *See Papst Licensing GmbH & Co. KG v. Fujifilm Corp.*, No. 2104-1110, slip, op. at 22-25 (Fed. Cir. Feb. 2, 2015) (reversing summary judgment of non-infringement in part because "virtual file" content may be stored off the "interface device," though specification example instead uses "data device" for such stoarge). The district court appeared to believe that it was enough to find that a preferred embodiment naming a certain structure to satisfy one claim limitation means that the same structure can never be used to satisfy another separately-named claim limitation. But this is not the law. *Id.*

Consider for example a claim to a chair having four legs and two arms, without specifying materials. Just because the preferred embodiment uses wood for the legs and steel for the arms does not foreclose coverage by a chair that uses wood for both the legs and the arms. But that is the effect of the district court's reasoning. It came to believe Chalumeau was "frivolous" to advance a construction of "adapter" that lacked a negative limitation

excluding RJ-45 connectors based on flawed logic wholly divorced from the standard canons of claim construction.

ii. Nothing Required an "Adapter of a First Type" to Be a Wireless Adapter

The district court's second critique of "adapter" was that Chalumeau was allegedly frivolous for not reading in a limitation from an embodiment that the "adapter of a first type" refers to a wireless adapter (A0027). In the exceptional case order, the district court's sole "frivolousness" reasoning was that in its prior claim construction opinion, it "noted that such a construction would read out [sic: include] adapters of a 'second' or 'third' type, and that the specification itself teaches away from powering a wired adapter. (D.I. 136 at 8). As I stated during oral argument concerning this motion, 'that was one of the wors[t] proposed constructions I've ever seen so far.' (D.I. 175 at 9:25-10:1)" (A0027-28).[14]

Yet the criticism should actually fall on the district court for violating the "cardinal rule" of claim construction – importing a limitation from a disclosed embodiment into the claims. *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1340-41 (Fed. Cir. 2001). In this

[14] The district court's "wireless" limitation might have impacted claimable damages, but not infringement *per se*, since Alcatel's designee confirmed that its accused equipment detects wireless access points that operate as PDs under the standard (A1874, 101:2-23).

case, the drafter picked the term "first" within the claim as a modifier that is broader than (and communicates something different from) just wireless or infrared adapters. While it is true that the specification discloses a "first type" of adapter that is wireless, its wirelessness was not the property that mattered to the claim. What mattered was that some devices should be detectable as properly receiving power, while other devices should be detectable as properly not receiving power. The claim drafter left it as a designer's choice to decide what feature within a particular deployment helped the network equipment detect and distinguish the two.

That is why it was so straightforward for Chalumeau to present legitimate arguments in support of its contention that "first" simply means "particular" in this context. Chalumeau had earlier argued, but the district court overlooked, that the term "first" in this context was a patent-drafting convention that simply sets the modified term apart as distinct from others (A1363, citing authority). Chalumeau had also argued that the patent teaches the identification of various types of adapters, including wired ones such as for Ethernet, 10BaseT, 100BaseTX, 100BaseT4, and Token Ring (A1362). Chalumeau argued that the specification "identifies" all of these, plus wireless ones, which is all the pinpointed claim language requires (A1362-63). The "identification," as such, need not be related to the application of

power, a feature addressed elsewhere in the claim, even though this later part of the claim requires it to be of the "first" particular type before actually applying the power (A1367-68). And anyway, broader statements in the specification suggest that even these "wired" adapters may, if such a configuration is chosen, receive power (A0049, '885 patent at 13:36-51, A1372-73, A2458, citing '885 patent).

Chalumeau also noted that the relevant claim language did not contain the limitation of "wireless" (instead it says "first"), signifying the drafter's attempt to maintain breadth (A1368 n.28). Chalumeau also asserted to the district court that to accept Alcatel's contention would improperly import limitations from the preferred embodiment (A1363). Within its arguments, Chalumeau cited numerous parts of the claim language and the patent specification for support (A1362, A1367).

In short, just because Alcatel led the district court to an erroneous construction does not mean that Chalumeau's was frivolous. As shown above, Chalumeau's construction was likely correct (a determination this Court need not reach). At a minimum, Chalumeau's construction was not frivolous because it was grounded in standard canons of claim construction and reasonably relied on the intrinsic record.

2. Legitimate Analysis Supported that the "User Interface Connectors" Are Properly Construed as Not Limited to Something Separate From the "Network Hub"

The only other Chalumeau claim construction position that the district court criticized in its exceptional case order was that a "user interface connector" need not be "separate" from the network hub (A0028-29). Yet again, if not correct, Chalumeau's position was at least not frivolous. It was reasonably based on the intrinsic record, and grounded in standard canons of claim construction.

As before, it was the district court, not Chalumeau, who committed a "cardinal sin" of claim construction, by imputing limitations from an embodiment into the claim construction. The district court held that a "user interface connector" must be "separate" from the network hub, even though that term or concept is nowhere within the language of claim 8 (A1946, A0049, '885 patent at 14:26-43). If anything, this district court error is more glaring than the ones discussed before. That is because here, there were parts of the specification that treated "user interface connectors" as capable of residing on the hub. But even if there were not, the district court still lacked any basis for importing that limitation.

This Court recently confirmed that a construction requiring such separateness is improper absent express language within the claim or a

"clear declaration of what constitutes an *essential* part of the invention." *See Papst Licensing*, No. 2014-1110, slip op. at 12-15 (emphasis added) (reversing summary judgment of non-infringement in part because the district court erroneously construed "interface device" as a "stand-alone device" by importing a separateness requirement from the preferred embodiments).

As discussed before, Chalumeau cited numerous parts of the intrinsic record to argue that it would be improper to add an unclaimed "separateness" requirement, imported as a limitation from one of the embodiments (A1333, A1339-40, citing authority calling it a "cardinal sin"). Chalumeau pointed out that nothing in the patent specification mandated that the network hub and user interface connectors must be separate, as they were connected and associated by coupling, and are therefore clearly not separate (A1333-34). Chalumeau also pointed out the lack of clarity of any construction that implied these connectors must be "separate" from the hub, since the word "separate" has many potential meanings (A1334). Chalumeau also pointed out the "hub user interface connector 308" example as one mandating hub-placement for such an item – in as many words (A1339). Chalumeau also pointed to a part of the specification that interchangeably

described item 204 (the purportedly separate-from-the-hub "user interface connector") as "hub user connectors 204," and thus on the hub (*Id.*).

In the face of this, neither Alcatel nor the district court ever cited any demand or instruction within the intrinsic record that a "user interface connector" must, in all cases, be separate from the hub, and that the scope of the invention relies upon that fact. Yet the district court treated the record as if such disclaimers and definitions existed (A1937-38). In reality, the specification's side-by-side placement of the "user interface connectors 204" and "hub user connectors 208" simply sets up an ordinary patent claim construction scenario. Namely, as this Court has stated, even if a patent discloses only a single embodiment, it is error to limit the claims to such an embodiment. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*).

Once again, just because Alcatel led the district court to an erroneous construction, that does not mean Chalumeau's was frivolous. As shown above, it was likely correct (a determination that, again, this Court need not reach). At a minimum, Chalumeau's construction eschewing unstated "separateness" for the "user interface connectors" was not frivolous because it was grounded in standard canons of claim construction and reasonably relied on the intrinsic record.

C. The District Court's Critique of Chalumeau's Pre-Suit Investigation Was Both Irrelevant and Incorrect

The district court's order also criticizes Chalumeau's pre-suit investigation as rudimentary and inadequate (A0027). Even if true, if this were all that remained of alleged bases to declare this case exceptional, it would be legally irrelevant. Disagreements with the sufficiency of a pre-suit investigation, without more, will not support a finding of exceptionality. Such matters fall under the purview of Rule 11, which Alcatel never invoked. *Ulead Sys., Inc. v. Lex Computer & Mngmt Corp.*, 351 F.3d 1139, 1150 (Fed. Cir. 2003) ("[W]e decline to impose a special, pre-filing investigation requirement independent of Rule 11.").

Even if the pre-suit investigation were a proper subject to consider, the district court's characterizations are not correct. The district court mainly found fault in the pre-suit analysis because "the limitation groupings are far too broad, encompassing multiple disputed terms in each group" (A0027). The district court observed that *during the litigation*, it had "separately construed" individual terms that "are dealt with as one in the pre-suit document" (*Id.*). This critique is unfair and illogical. Chalumeau had no crystal ball to predict the granularity within a future defendant's, or a future court's, analysis of claim construction. In any case, the district court's critique largely depends on Chalumeau's *in camera* submission (A0026-27).

Therefore, Chalumeau offers this Court the same *in camera* submission. It will show that the district court was mistaken in how it counted "limitation groupings," even if that were somehow a relevant question.[15]

III. THE DISTRICT COURT ABUSED ITS DISCRETION IN FAILING TO CREDIT CHALUMEAU WITH GOOD FAITH FOR VOLUNTARILY DISMISSING AFTER AMENDMENT OF ALCATEL-LUCENT'S QUESTIONABLE LICENSE DEFENSE INTO THE CASE, AND DREW CLEARLY WRONG INFERENCES OF MOTIVE

Chalumeau's voluntary dismissal in good faith should independently have foreclosed a fee award.[16] Sound precedent under section 285 counsels

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[15] The district court overlooked a declaration within the *in camera* submission explaining the technical and legal talent deployed to investigate infringement. It also made incorrect assertions that the four pages of the pre-suit investigation document only break down the claim language into four named limitations. The district court mistook the color indicators on pages 2-3 of the document as the sole extent of broken-out analysis. In fact, non-colored claim language is also addressed in these pages. And two additional pages exist containing relevant analysis that the district court overlooked. Nor is the district court correct to say that "five [colored] terms are dealt with as one in the pre-suit document" (A0027). Instead, five claim terms are associated with different colors, but the color markings on the document exemplify their distinct treatment from one another.

[16] After briefing had closed in the district court, and on the same day as the ruling on appeal, precedent emerged for the first time supporting that a voluntary dismissal of a patent suit with prejudice, in the absence of a covenant not to sue, does not make the defendant a "prevailing party" under section 285 and this Court's precedents. *Parallel Iron, LLC v. NetApp, Inc.*, No. 12-769-RGA, 2014 U.S. Dist. LEXIS 127850, at *5-11 (D. Del. Sept. 12, 2014). Though Chalumeau initially conceded "prevailing party" status, this Court has the power to set aside, and should set aside, the appellate waiver doctrine and consider the issue. *See L.E.A. Dynatech, Inc. v. Allina*, 49 F.3d 1527, 1531 (Fed. Cir. 1995). To be clear, the argument in the body

strongly, if not conclusively, against such an award. *See Q-Pharma*, 360 F.3d at 1304 ("[W]e fail to see how a changed legal theory that leads to the voluntary dismissal of a lawsuit can amount to bad faith litigation."); *see also Larchmont Engineering, Inc. v. Toggenburg Ski Center, Inc.*, 444 F.2d 490, 491 (2d Cir. 1971) ("We find no abuse of discretion in Judge Port's ruling. Indeed, to have ruled otherwise would have been extraordinary. . . . After pretrial discovery revealed the weaknesses of its claims, Larchmont may well have decided in good faith to minimize litigation expense by foregoing its claims and by taking a voluntary dismissal. Such a move should not be discouraged by the threat of imposing attorney fees."); *Dodge-Regupol, Inc. v. Rb Rubber Prods.*, No. 3:06-CV-236, 2010 U.S. Dist. LEXIS 31838, at *38-39 (M.D. Pa. Mar. 31, 2010) ("[W]here a party voluntarily dismisses a case, courts have held that the proper exercise of discretion typically entails adherence to the American Rule with each side bearing its own costs.") (citing *Wedgetail Ltd. v. Huddleston Deluxe, Inc.*, 576 F.3d 1302 (Fed. Cir. 2009) (voluntary dismissal, fee petition denied); *Hardinge Company, Inc. v. Jones & Laughlin Steel Corp.*, 275 F.2d 37 (3d Cir. 1960) (same); *see also Jacobsen v. Katzer*, 609 F. Supp. 2d 925, 931

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text assumes that Alcatel was, in fact, a "prevailing party." The discussion in this footnote merely points out an additional ground for reversal.

(N.D. Cal. 2009)); *Knauf Fiber Glass v. Certainteed Corp.*, 544 F. Supp. 2d 838, 866 (S.D. Ind. 2008) ("The most salient and exceptional aspect of this case is that Knauf promptly and voluntarily dismissed its claims in response to the prior art . . . . That decision is powerful evidence that Knauf was not acting in bad faith at any time, either in the litigation or in the patent prosecution.").

Absent a finding of litigation misconduct,[17] neither this Court, nor any pre-1981 regional court of appeals, has ever affirmed section 285 sanctions against a patentee who had voluntarily dismissed its action prior to a liability ruling.[18] Here, no summary judgment motion was pending. When a patentee

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[17] The district court's order does not single out any Chalumeau conduct as "misconduct." The order criticizes Chalumeau's designation of an expert in the final days of fact discovery (A0030). But this is not misconduct, and of itself cost Alcatel nothing (likely saving it some expense). It is common and not improper for litigants to marshal their funds until they are absolutely needed. *See e.g.*, Peter I. Ostroff, *Experts: A Few Fundamentals*, *in* THE LITIGATION MANUAL: PRETRIAL 448, 460–61 (John G. Koeltl & John Kiernan eds., 3rd ed. 1999), *available at* http://tinyurl.com/nc586wx (recommending not to "hire your expert as late as possible" for tactical reasons, but acknowledging that doing so is "popular" and "waiting sometimes saves money"). Here, waiting made perfect sense, since much of the infringement case depended on publicly available industry standards and data sheets.

[18] *Innovative Biometric Tech., LLC v. Toshiba Am. Info. Sys.*, 556 F. App'x. 958 (Fed. Cir. 2014) is the closest possible counterexample, but involved a dismissal in the backdrop of severe litigation misconduct. Among the kaleidoscope of misdeeds found by the district court were: requesting multiple delays to prevent the day of reckoning from occurring, proposing a special master but objecting to one's appointment, failing to oppose a

dismisses its case before any liability rulings, especially before the pendency of any summary judgment motions, a district court should not award fees against it. This is true whether or not the case meets the Supreme Court's more liberal test of "exceptionality." Indeed, by recently lowering the threshold for finding a case "exceptional," the Supreme Court, in effect, heightened the importance of the proper use of discretion when actually awarding fees after such a finding.

Too many negative consequences follow if this Court holds otherwise. Parties should be incentivized to dismiss cases where appropriate. The federal courts advance sanctions policies that encourage the resolution of cases. *See, e.g.*, Fed. R. Civ. P. 16(c) & (f) (authorizing sanctions where a party or its attorney fails to participate meaningfully in a pretrial conference involving, among other things, settlement discussions); *Dodge-Regupol*,

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summary judgment motion but instead complaining of a need for more discovery when actually in possession of all of the facts, naming prior art (known pre-suit) that invalidated the patents-in-suit as the infringing instrumentality, and dismissing at the eleventh hour knowing that an adverse decision based on the long-delayed summary judgment ruling was imminent. *See also Taltech Ltd. v. Esquel Enters.*, 604 F.3d 1324, 1334 (Fed. Cir. 2010) (affirming § 285 award based on trial misconduct, such as "dismissal of its damages claim after Esquel conducted discovery and prepared a defense; waiver of a jury request only weeks before trial and after Esquel had extensively prepared; voluntary dismissal with prejudice, in the middle of trial, of five of its claims of infringement in order to avoid responding to Esquel's motion for entry of judgment pursuant to Fed. R. Civ. P. 52(c); [and] withdrawal of an International Trade Commission complaint shortly before the hearing began.").

Inc., 2010 U.S. Dist. LEXIS 31838, at *38-40 (citing "profound and negative implications" from exercising discretion to sanction a voluntary dismissal, "since it would suggest that litigants who acknowledge changed circumstances may be punished for their candid acknowledgment that an action should be abandoned."). Even when a party violates Rule 11 by bringing a frivolous complaint, that party has a safe harbor period within which to dismiss without consequence. *See* Fed. R. Civ. P. 11(c)(2).

In patent litigation, a case that may seem nonfrivolous and winnable upon filing might suffer a series of rulings or discovery developments that, while not lethal, make the case uneconomical. *Q-Pharma, Inc.*, 360 F.3d at 1304; *Parker-Hannifin Corp. v. Seiren Co.*, No. 07-104-MPT, 2009 U.S. Dist. LEXIS 26863, at *11-12 (D. Del. Mar. 31, 2009) ("Parties should be able to terminate litigation when costs make trial an unattractive remedy or when other litigation strategies develop. Parker's decision to dismiss based on a cost- benefit analysis is evidence of neither materially inappropriate conduct nor bad faith litigation."). If such a party or its trial counsel knew that it faced a strong possibility of sanctions, and potential ethics investigations that often follow after an award of sanctions, they would have a strong incentive to keep fighting. *Dodge-Regupol*, 2010 U.S. Dist. LEXIS 31838, at *40 ("[W]e believe that sanctions should not be imposed in a

fashion which encourages parties to continue with possibly meritless litigation. Instead, sanctions practice should encourage voluntary acknowledgments by parties that the time for litigation of an issue has drawn to a close."). The downside risk would motivate parties and counsel to eschew voluntary dismissal in favor of pushing the case to trial. *Id.* Thus, a policy of awarding attorneys' fees after voluntary dismissal but before any negative liability ruling incentivizes wasteful litigation to the detriment of both the parties and the court system itself. *See NXP B.V. v. Blackberry, Ltd.*, No. 6:12-cv-00498-YK, 2014 U.S. Dist. LEXIS 159217, at *16-19 (M.D. Fla. Oct. 21, 2014) ("[Plaintiff's] choice to drop these two patents, rather than pursuing them to verdict and then appealing the claim construction order, actually weighs in favor of a finding of reasonableness.").

There admittedly exists a contrary policy: deterrence. Deterrence is one of the considerations the Supreme Court indicates a district court should consider under section 285. *See Octane Fitness*, 134 S. Ct. at 1756 n.6 (citation omitted). But the Supreme Court did not indicate that the policy of deterrence trumps the policy in favor of the resolution of disputes in the context of voluntary dismissals. And, other tools fill the gap perfectly well. Those tools include 28 U.S.C. § 1927 (allowing lawyers to be sanctioned for

vexatiously multiplying the proceedings) and the district courts' inherent authority. Each of these requires misconduct embodying, or approaching the level of, a fraud on the court. Thus, tools already exist to deter and punish those who voluntarily dismiss who are actually culpable. There is no need to extend section 285 to include sanctions against parties who voluntarily dismiss before a negative liability ruling and who do not engage in litigation misconduct. Such an extension would cause an unintended (and unneeded) chilling effect, deterring meritorious cases as well.

Thus, the district court abused its discretion to find a case exceptional to punish a voluntary dismissal with prejudice without there having been any litigation misconduct or negative liability rulings against the patentee. At a minimum, this Court should remand with instructions to factor into the totality of the circumstances how Chalumeau's conduct in voluntarily dismissing reflects good faith, and actually advanced laudable policies of the federal court system.

The district court's countertheory for why Chalumeau decided to dismiss – that the license defense meant that Chalumeau "lost its leverage" and would put an end to an "extortion" scheme – does not follow from the facts. Nor should it trump the laudable act of dismissing voluntarily. As discussed in detail already, Alcatel's license defense had many

shortcomings. *See* Statement of the Case, section C, above. The district court mainly believed that Chalumeau's "futility" argument (made while opposing the motion for leave to amend) was inconsistent with its later explanation of changed economics (A0029-30). But there was no inconsistency. As explained during oral argument on the fee motion, Chalumeau's understanding of the economics was based on the district court *allowing* the amendment (A2606). By the time of Chalumeau's decision to dismiss voluntarily, the district court had already rejected the "futility" argument. The district court therefore acted unfairly and illogically to consider it inconsistent for Chalumeau to explain changed economic circumstances, just because it previously argued (unsuccessfully) that the license defense was futile.

A meritorious claim for infringement still remained. It is at least questionable whether Alcatel could have shouldered its burden to prove that [redacted] Nor did discovery verify that [redacted] Thus, it was clearly wrong for the district court to infer that Chalumeau's acknowledgment of changed

litigation economics (permitted and encouraged under *Q-Pharma*) actually reflected some unspecified wind-down of an "extortion" scheme after the loss of "leverage."

IV. THE DISTRICT COURT'S ORDER FAILED TO ADDRESS THE "SUBSTANTIVE STRENGTH OF [CHALUMEAU'S] LITIGATING POSITION" UNDER THE DISTRICT COURT'S EVENTUAL (THOUGH LIKELY INCORRECT) CLAIM CONSTRUCTION

The district court's order suffers from one final, though no less important, flaw. It sheds no light on, and performs no analysis of, the substantive strength of Chalumeau's litigating position as of the time of dismissal. Rather, its main disagreement is with Chalumeau's positions leading up to interlocutory orders, such as claim construction and the allowance of the amendment adding the new license defense.

Significantly, even under the likely-erroneous claim constructions discussed above, and even burdened by a new and potentially distracting license defense, Chalumeau had an infringement case with substantial odds of success at trial. The district court's order fails to address, much less contradict, this reality. The district court order thus sidesteps the critical task under *Octane Fitness*: to ascertain whether Chalumeau's case, at the time of dismissal, was "one that stands out from others with respect to the substantive strength of a party's litigating position (concerning both the

governing law and the facts of the case) . . . .” *Octane Fitness*, 134 S. Ct. at 1756.

During exceptional case briefing, Chalumeau’s expert confirmed that he was prepared to explain why, even under the district court’s claim construction, Alcatel’s products still infringed (A2460, A2482-85). Even if an “adapter of a first type” for a remote device must be for a wireless type device, discovery confirmed that Alcatel’s products [redacted] (A1874, 102:2-104:23). And, such devices must have the specially adapted circuitry – the 25 kΩ resistance across the RJ-45 pins – that allows their detection as powered devices, since the industry standard governs their operation. Thus, it was a gross oversimplification for the district court to believe Chalumeau would approach trial naming just a plain, unadapted RJ-45 connector to satisfy the district court’s construction. Plus, as many courts have noted, including this one, practice of an industry standard may be used to demonstrate the practice of particular patent claim limitations. *See Fujitsu Ltd. v. Netgear Inc.*, 620 F.3d 1321, 1327 (Fed. Cir. 2010) (“[I]f an accused product operates in accordance with a standard, then comparing the claims to that standard is the same as comparing the claims to the accused product.”); *see also Linex Techs. Inc. v. Belkin Int’l, Inc.*, 628 F. Supp. 2d

703, 709 (E.D. Tex. 2008) ("Therefore, the use of an industry standard as the basis for infringement contentions is permissible . . . ."). While some of the likely-wrong constructions might have diminished claimable damages, they did not eliminate the infringement claim as a whole.

Admittedly, the most difficult hurdle for Chalumeau under the district court's likely-erroneous claim construction might have been addressing the imported-from-the-specification concept that "user interface connectors" must be "separate" from the network hub. The structures Chalumeau had named in its infringement contentions were RJ-45 connector ports *within* the Alcatel accused products (A1731-32). Yet literal infringement might still exist if one considers the electronic boards within the overall housing to be the actual "hub," which are thus "separate" from the connected RJ-45 ports. And even if not, this claim construction and these facts at worst merely set up one of the most ordinary and uncontroversial applications of the doctrine of equivalents – combining accused product elements to meet separately-named claim limitations. *Eagle Comtronics v. Arrow Comm'n Labs.*, 305 F.3d 1303, 1317 (Fed. Cir. 2002) (genuine issue of material fact whether one-piece accused device without separate "front cap' and "rear insert body" required by claim infringes by equivalents); *Sun Studs, Inc. v. ATA Equip. Leasing*, 872 F.2d 978, 989 (Fed. Cir. 1989), *overruled on other grounds*,

A.C. Aukerman Co. v. R.L. Chaides Constr. Co., 960 F.2d 1020, 1038-39 (Fed. Cir. 1992) ("It was legal error to hold that the aligning and charging steps must be performed by separate elements in the apparatus. One-to-one correspondence is not required, and elements or steps may be combined without *ipso facto* loss of equivalency."); *cf. Dolly, Inc. v. Spalding & Evenflo Companies, Inc.*, 16 F.3d 394, 399 (Fed. Cir. 1994) (distinguishing *Sun Studs* only because explicit words in the patent claim precluded single structural element to meet two claim limitations). Doctrine of equivalents infringement would have still been infringement.

Thus, nothing in the district court's exceptional case analysis reached or refuted that "substantive strength" still existed for Chalumeau's overall infringement case. At worst, by the time of dismissal, the district court's interlocutory orders had eaten into Chalumeau's damages claim. But a patent case does not lose its overall merit just because it is small. *Cf. EON Corp. IP Holdings, LLC v. FLO TV Inc.*, No. 10-812-RGA, 2014 U.S. Dist. LEXIS 71753, at *6-7 (D. Del. May 27, 2014) ("It cannot be the case that a plaintiff may be subjected to monetary sanctions for failing to drop a case against a defendant if the cost of litigation exceeds the potential recovery.").

V. CONCLUSION

Chalumeau dismissed in good faith. Such conduct should be praised, not punished. Responsible dismissal saved the parties and the district court from the burden of pursuit of a damages claim through trial. If any case becomes the first in which this Court affirms an exceptional case finding against a patentee who voluntarily dismissed, in the absence of litigation misconduct or a negative liability ruling, it should not be this one.

For the foregoing reasons, Chalumeau respectfully requests that the Court reverse the exceptional case award, or at least vacate and remand for proper analysis under the correct facts and law.

Dated: February 5, 2015

Respectfully submitted,

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ADDENDUM

TABLE OF CONTENTS TO ADDENDUM

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Chalumeau Power Systems LLC, Plaintiff, v. **Alcatel-Lucent, Alcatel-Lucent USA Inc., and Alcatel-Lucent Holdings Inc.,** Defendants.	Civil Action No. 11-1175-RGA

MEMORANDUM

Pending before this Court is Defendants' Motion for Attorneys' Fees and Costs (D.I. 158) and related briefing. (D.I. 159, 163, 167). The Court heard oral argument on this motion on June 30, 2014. (D.I. 175). Alcatel-Lucent asks that this case be declared "exceptional" so that it may be awarded attorneys' fees spent defending Chalumeau's frivolous claims. Chalumeau responds that its infringement contentions and claim construction positions were not frivolous, and that it did the responsible thing by dismissing the case when the "economics of the case" changed due to Alcatel's licensing defense.

The Patent Act provides that "in exceptional cases [the court] may award reasonable attorney fees to the prevailing party." 35 U.S.C. § 285. Thus, under the statute there are two basic requirements: (1) that the case is "exceptional" and (2) that the party seeking fees is a "prevailing party." The Supreme Court recently defined an "exceptional" case as "simply one that stands out from others with respect to the substantive strength of a party's litigating position (considering both the governing law and the facts of the case) or the unreasonable manner in

which the case was litigated." *Octane Fitness, LLC v. ICON Health & Fitness, Inc.*, 134 S. Ct. 1749, 1756 (2014).

That a case be "exceptional" is the only limitation imposed by the text of Section 285. The word "exceptional" is not defined in the Patent Act. The Supreme Court thus attributed to the word its ordinary meaning: "uncommon," "rare," "not ordinary," "unusual," or "special." *Id.* District judges are free to exercise their discretion on a case-by-case basis, considering the totality of the circumstances, when determining whether attorney's fees are appropriate. *Id.* The applicable burden of proof that a litigant must carry in order to be awarded attorney's fees is a preponderance of the evidence. *Id.* at 1758.

Chalumeau does not dispute that Alcatel is the prevailing party. Therefore the only question is whether the case is "exceptional." Alcatel points to two main categories of conduct which it claims warrant finding this case exceptional. The first is Chalumeau's infringement theories and claim construction positions. The second is Chalumeau's overall litigation misconduct, including opposing Alcatel's motion to amend its answer to add a license defense and its late appointment of an expert.

I agree with Alcatel that Chalumeau's infringement theories and claim construction positions were frivolous. Alcatel claims that Chalumeau's infringement theories were based entirely on public documents, and that Chalumeau did not even have their expert look at Alcatel's core technical documents until after November 8, 2013. Chalumeau does not contest this, but maintains that its infringement theories were reasonable. I disagree. Chalumeau's infringement contentions identified an RJ-45 connector as the claimed "adapter." (D.I. 160-2 at 11). Yet even a cursory review of the patent identifies RJ-45 connectors as separate from

adapters. '885 patent at 5:26-28 ("In one embodiment of the present invention, the user interface connectors **204** are conventional RJ45 connectors."). The patent repeatedly references user interface connectors as being distinct from infrared adapters, which are given the number **206**. *See* '885 patent at 5:3-6:23 (referencing "user interface connectors **204**" approximately seven times and "infrared adapter **206**" approximately sixteen times). No person reasonably reading the '885 patent would equate an RJ45 connector with the claimed adapter.

Even under Chalumeau's proposed claim construction, an RJ45 connector could not be an adapter. Chalumeau proposed that an "adapter" be construed as "a network interface device that is capable of receiving electrical power and data from the network hub." (D.I. 136 at 11). Yet there was never any argument that an RJ45 connector was capable of receiving power. In its answering brief, Chalumeau defended its infringement contentions, claiming that "[a] thorough pre-filing investigation for each of the accused products occurred and each family of product was separately charted with relevant supporting technical documentation." (D.I. 163 at p. 8 n.3). Noticing that this sentence did not contain a citation, I asked for documents supporting this claim. (D.I. 175 at 36:8-37:24).

In response, Chalumeau admitted that not every accused product family was vetted before filing suit. (D.I. 176 at 1). However, Chalumeau provided the Court with a document detailing the pre-suit investigation of the OmniSwitch 6850 series and how it might infringe claim 8 of the patent. The document is 5 pages long, one of which is a cover page. (letter submitted on July 9, 2014 for *in camera* review). The cover page states that the references used were the OmniSwitch 6850 Users Guide, the OmniSwitch 6850 Data Sheet, and the IEEE Std 802.3af. The remaining four pages contain the claim language broken down into four limitations,

snippets from the references outlined in colors corresponding to the claim limitations, and nine bulleted sentences.

Thus, Chalumeau did in fact engage in some semblance of a pre-suit investigation. However, it seems that it was consistent with the meager effort Chalumeau put forth in the rest of the suit. The pre-suit document breaks down the claim into the following four limitations: 1) "network system," 2) "a plurality of user interface connectors each adapted for coupling to a," 3) "remote device," 4) "network hub coupled to the plurality of user interface connectors for communicating data between remote terminals coupled thereto, for identifying the operational protocol of a coupled device that indicates the type of device." These limitation groupings are far too broad, encompassing multiple disputed terms in each group. For example, the Court separately construed "user interface connector," "network hub," "for identifying the operational protocol of a coupled device that indicates the type of device," "type of device," and "operational protocol/operational protocol of a coupled device." (*See* D.I. 136). These five terms are dealt with as one in the pre-suit document. A pre-suit investigation which lumps so many limitations together does not demonstrate an adequate investigation into whether the accused device infringes each and every claim limitation.

Chalumeau's claim construction positions were similarly flawed. While I did agree with some of Chalumeau's proposed constructions, taken as a whole its positions were frivolous. For instance, Chalumeau proposed that an "adapter of a first type" be construed as an "adapter of a particular type." (D.I. 136 at 7). In the claim construction opinion, I noted that such a construction would read out adapters of a "second" and "third" type, and that the specification itself teaches away from powering a wired adapter. (D.I. 136 at 8). As I stated during oral

argument concerning this motion, "that was one of the wors[t] proposed constructions I've ever seen so far."[1] (D.I. 175 at 9:25-10:1).

Another of Chalumeau's proposed claim constructions merits attention. That is the "user interface connector," which was described throughout Chalumeau's pre-suit investigation and infringement contentions as RJ-45 ports, present on the network hub. (D.I. 160-2 at 8). Chalumeau's proposed claim construction allowed for the user interface connector to be part of the network hub. (D.I. 136 at 4) (*Compare* "a multi-pin connector through which both data and electrical power can be transmitted," *with* "connector that is separate from the network hub for connecting to remote devices."). Yet even a cursory inspection of the specification would have shown that it is the "hub user connectors," and not the "user interface connectors," that are part of the network hub. '885 patent at 5:12-13 ("The network hub **202** includes a plurality of hub user connectors **208**."); '885 patent at 5:29-33 ("The computers **212-2** and **212-3** may be physically connected to the network **201** via the hub user connectors **208** by physical wire connections, such as twisted-pair wires, between the respective second computer interfaces **216** and the user interface connectors **204**."). As can clearly be seen from Figure 2 of the '885 patent, reproduced below, the user interface connectors **204** are not part of the network hub **202**, but are attached via twisted-pair wires **205**, which connect to the hub user connectors **208**. *See also* '885 patent at 5:4 (referencing "twisted pair cables **205**"); 2:9-10 ("In a twisted-pair cable, the medium dependent interface MDI **144** is an RJ45 connector.").

[1] At the time, I had presided over forty *Markman* hearings.

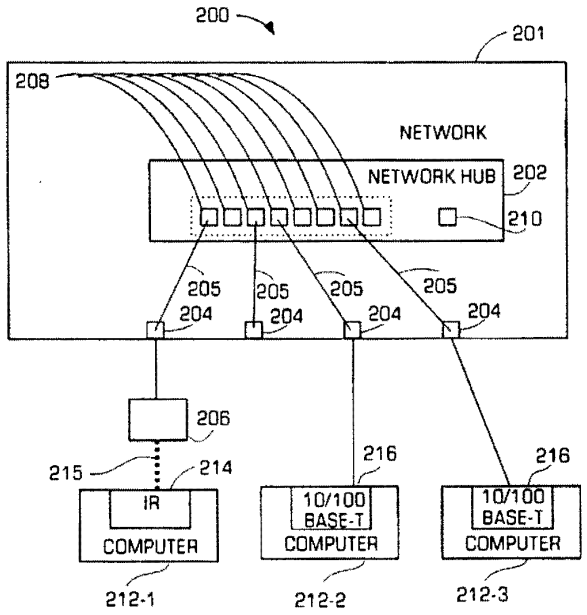

FIGURE 2

(Figure 2 of '885 patent). The fact that Chalumeau's infringement contentions relied on the user interface connectors being part of the network hub demonstrates the frivolity of Chalumeau's position on the construction of "user interface connector."

Chalumeau argues that the changed "economics of the case," and not its failed claim construction theories, was the reason that it dropped this suit. Specifically, Chalumeau asserts that because of Alcatel's late assertion of its license defense, the suit was no longer economically feasible. (D.I. 163 at p. 3). Chalumeau blames Alcatel for failing to bring the license defense earlier, but Chalumeau was the one who executed the license, before this lawsuit was filed. (D.I. 127-1 at 30) (license executed on September 30, 2011). If any party is at fault for neglecting to take the potential license defense into account, it is Chalumeau. Alcatel could only learn of it through (expensive) discovery; Chalumeau had it from day one. In fact, Chalumeau opposed

Alcatel's motion to add the license defense because it would be futile. (D.I. 134 at 8). If that were the case (and it appears to be simply an argument made without any factual basis), then the legitimate "economics of the case" would not have changed. Alcatel has a different theory about the economics of the case, which I find is supported by the record. Simply put, Alcatel failed to fold before Chalumeau lost its leverage.

Chalumeau filed a frivolous lawsuit with the sole purpose of extorting a settlement fee. When it realized that was not going to happen, it dropped the case. Chalumeau's entire litigation strategy was devoted to stringing out the case in the hopes that Alcatel would incur fees while Chalumeau would not. Chalumeau did not even disclose an expert until November 8, 2013, days before fact discovery ended. (D.I. 175 at 26:4-6). This allowed Chalumeau to keep its costs low while forcing Alcatel to spend considerable sums defending a frivolous lawsuit. Such behavior is exceptional.

For the reasons stated above, Defendants' Motion for Attorneys' Fees and Costs (D.I. 158) is granted.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Chalumeau Power Systems LLC, Plaintiff, v. **Alcatel-Lucent, Alcatel-Lucent USA Inc., and Alcatel-Lucent Holdings Inc.,** Defendants.	Civil Action No. 11-1175-RGA

ORDER

Pending before this Court is Defendants' Motion for Attorneys' Fees and Costs (D.I. 158). For the reasons stated in the accompanying memorandum, Defendants' Motion for Attorneys' Fees and Costs (D.I. 158) is **GRANTED**. The Court directs Defendants to submit any additional supporting documentation necessary to justify their fees as well as a brief explanation of those documents. Plaintiffs have fourteen days from the filing of the explanation to oppose the amount of fees.

Entered this 12th day of September, 2014.

Richard G. Andrews
United States District Judge

US005991885A

United States Patent [19]

Chang et al.

[11] **Patent Number: 5,991,885**

[45] **Date of Patent: Nov. 23, 1999**

[54] **METHOD AND APPARATUS FOR DETECTING THE PRESENCE OF A REMOTE DEVICE AND PROVIDING POWER THERETO**

[75] Inventors: **Wen F. Chang**, Saratoga; **Fang C. Yu**, Fremont, both of Calif.

[73] Assignee: **Clarinet Systems, Inc.**, San Jose, Calif.

[21] Appl. No.: **08/872,977**

[22] Filed: **Jun. 11, 1997**

[51] **Int. Cl.**[6] **G06F 1/26**

[52] **U.S. Cl.** **713/300**; 710/62

[58] **Field of Search** 395/750.01, 750.08, 395/200; 713/300; 710/62

[56] **References Cited**

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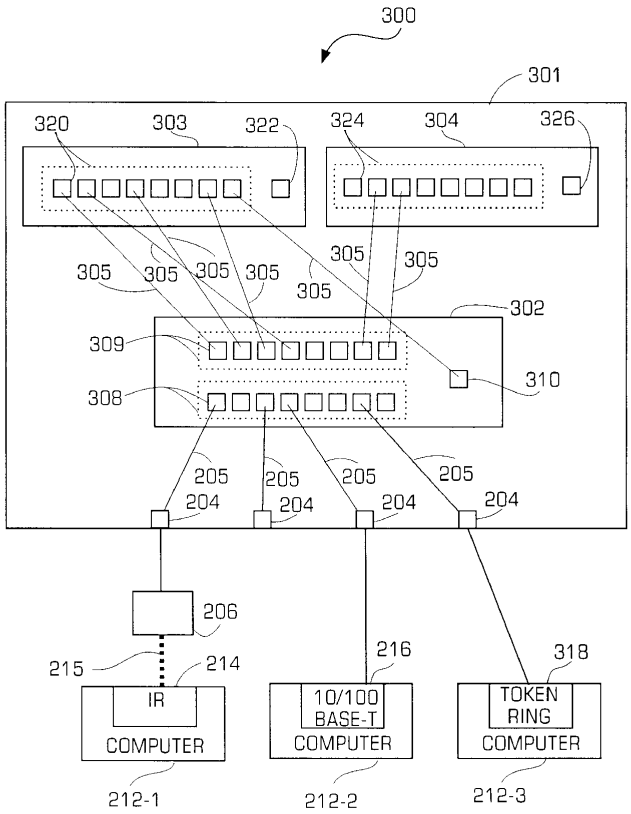
5,805,904	9/1998	Jung	395/750.01
5,845,150	12/1998	Henion	395/750.08

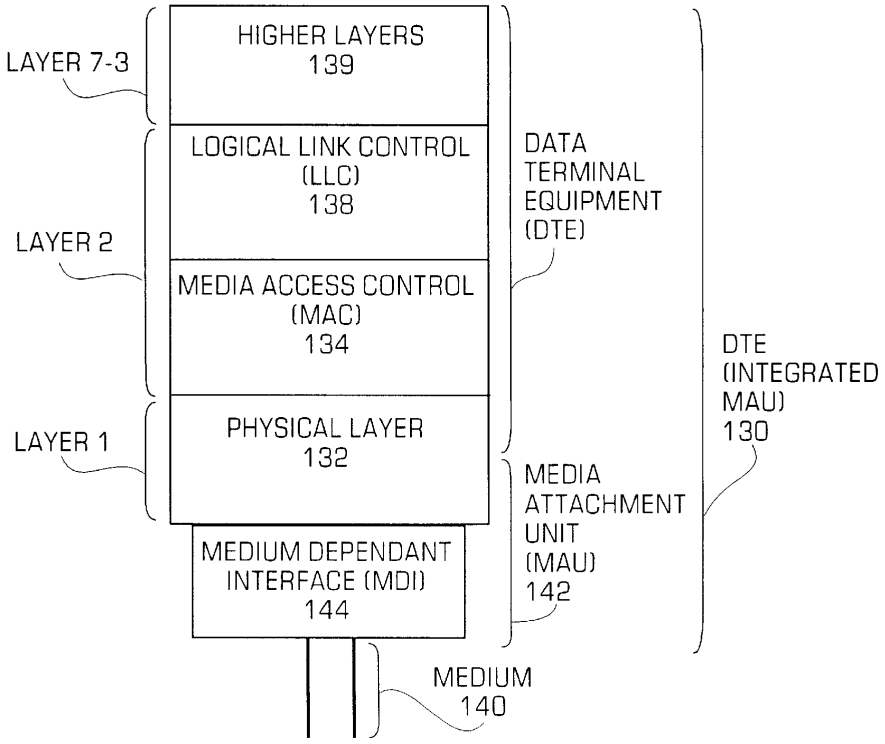
Primary Examiner—Glenn A. Auve
Assistant Examiner—David A. Wiley
Attorney, Agent, or Firm—Gray, Cary, Ware & Freidenrich

[57] **ABSTRACT**

A network system includes a network that detects the presence of a remote terminal connected to a network and determines the functional protocol of the remote terminal. If the remote terminal is an infrared adapter, the network hub provides electrical power to the infrared adapter and continually monitors for the presence of the infrared adapter. Upon removal of the infrared adapter, the network removes electrical power that is applied to a user interface connector that connects to the infrared adapter. If another protocol is detected for the remote terminal, the network hub communicates with the remote terminal in that protocol and converts the data to the protocol of the network.

18 Claims, 10 Drawing Sheets

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HIGHER LAYERS
139
LOGICAL LINK CONTROL
(LLC)
138
LAYER 2
MEDIA ACCESS CONTROL
(MAC)
134
LAYER 1
PHYSICAL LAYER
132
MEDIUM DEPENDANT
INTERFACE (MDI)
144
MEDIUM
140
DATA
TERMINAL
EQUIPMENT
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MEDIA
ATTACHMENT
UNIT
(MAU)
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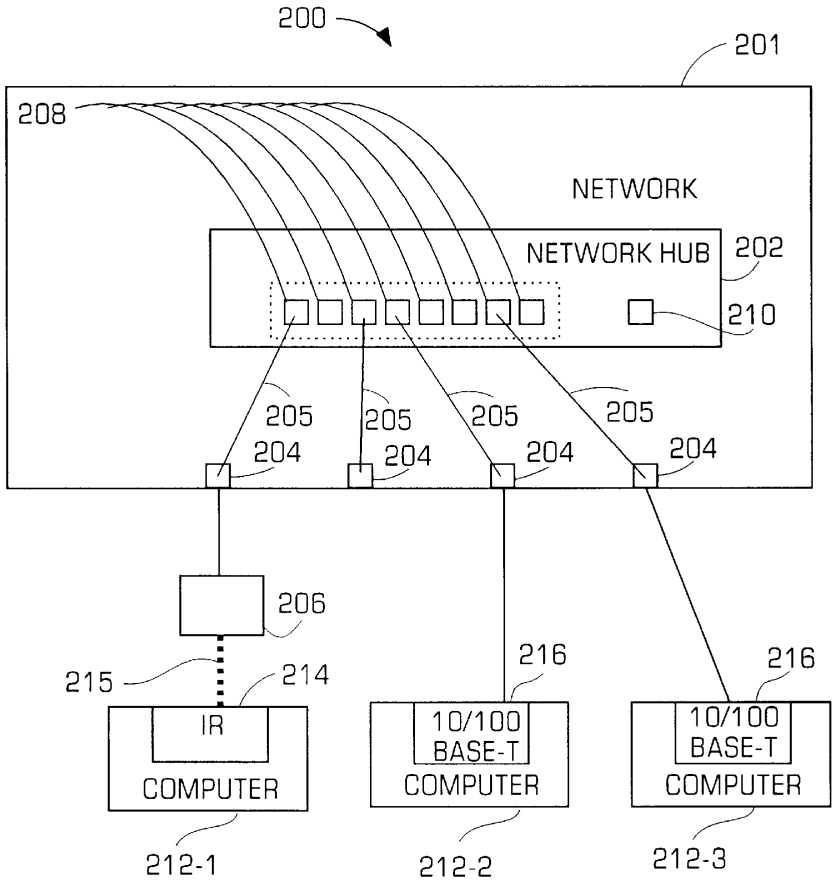
DTE
(INTEGRATED
MAU)
130

FIGURE 1


200
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NETWORK
NETWORK HUB
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206
215
214
216
216
IR
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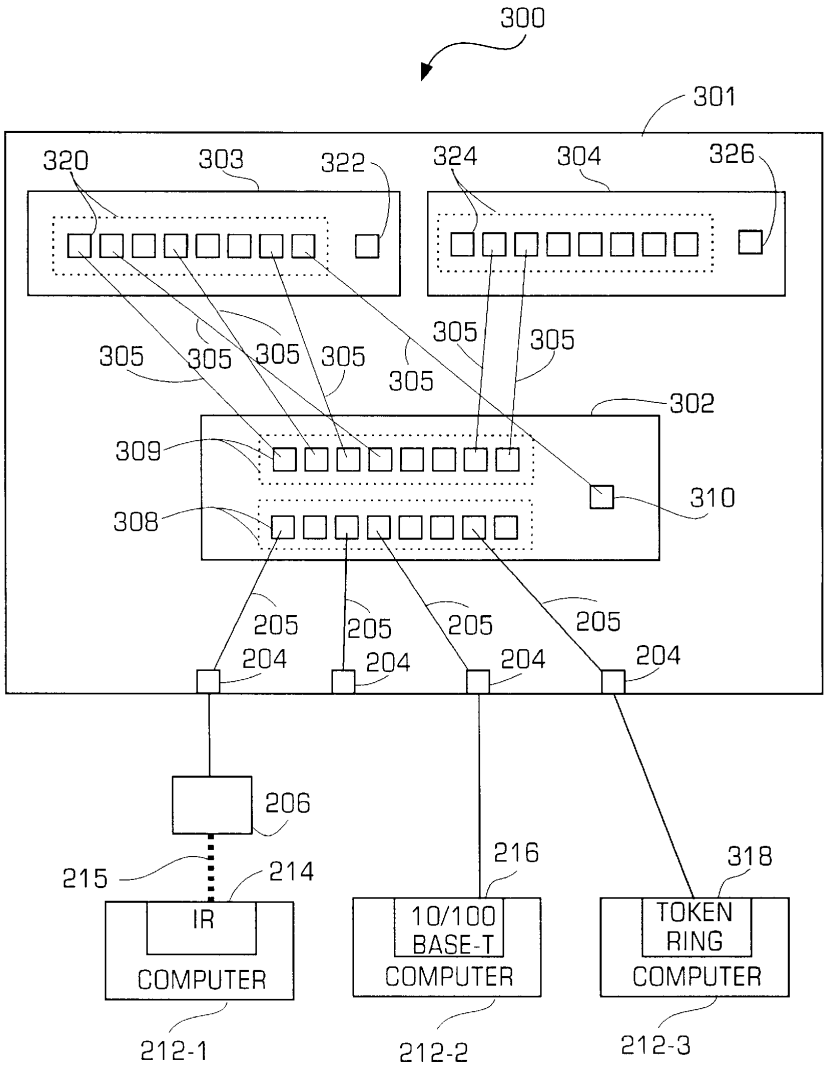
10/100 BASE-T
COMPUTER
COMPUTER
COMPUTER
212-1
212-2
212-3

FIGURE 2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206
215
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FIGURE 3

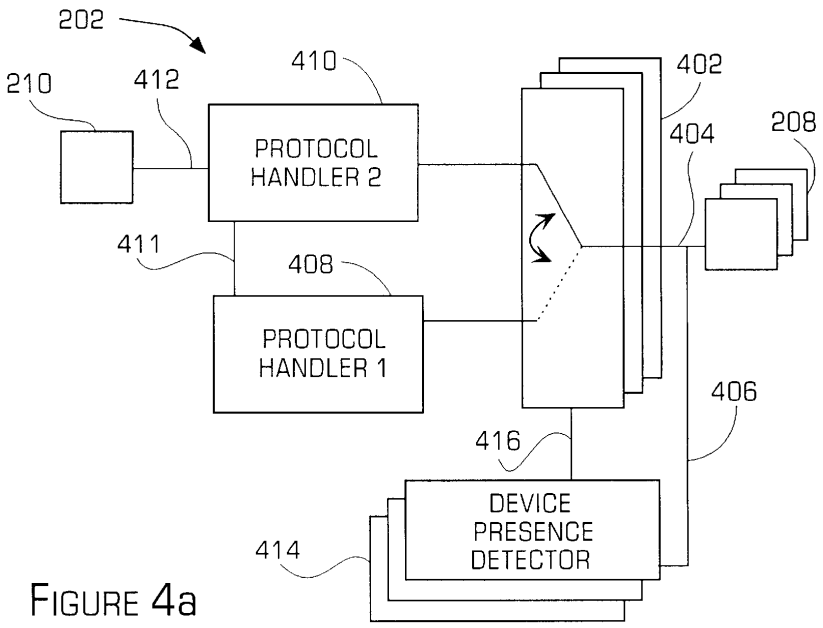

FIGURE 4a

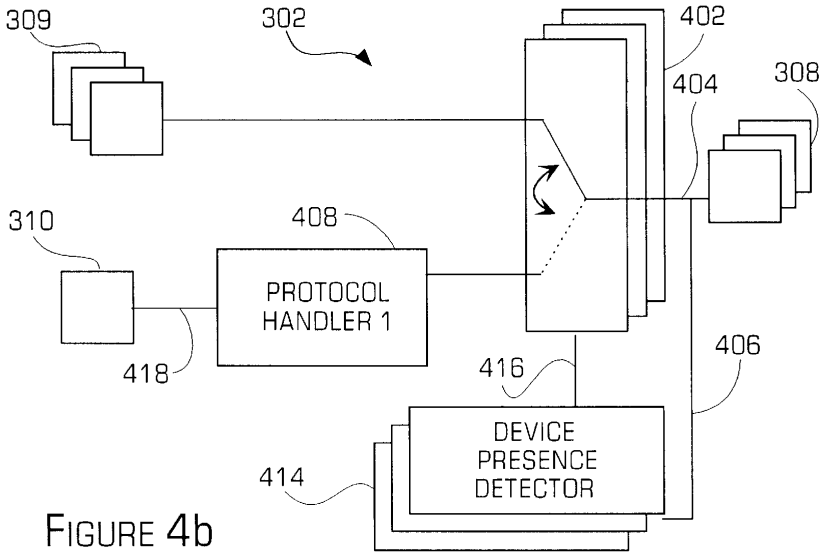

FIGURE 4b

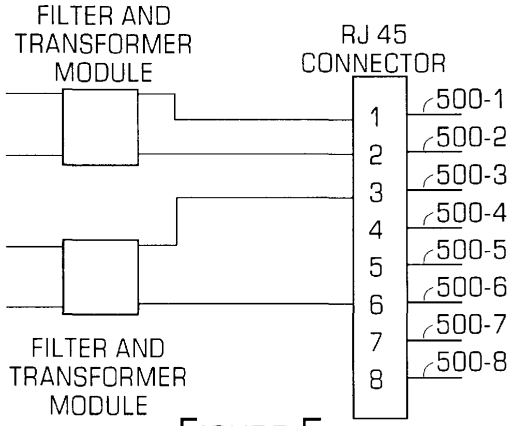

FIGURE 5a

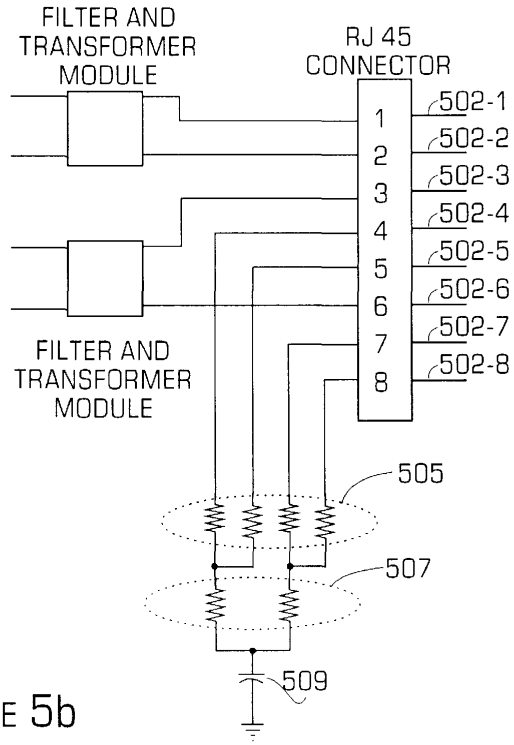

FIGURE 5b

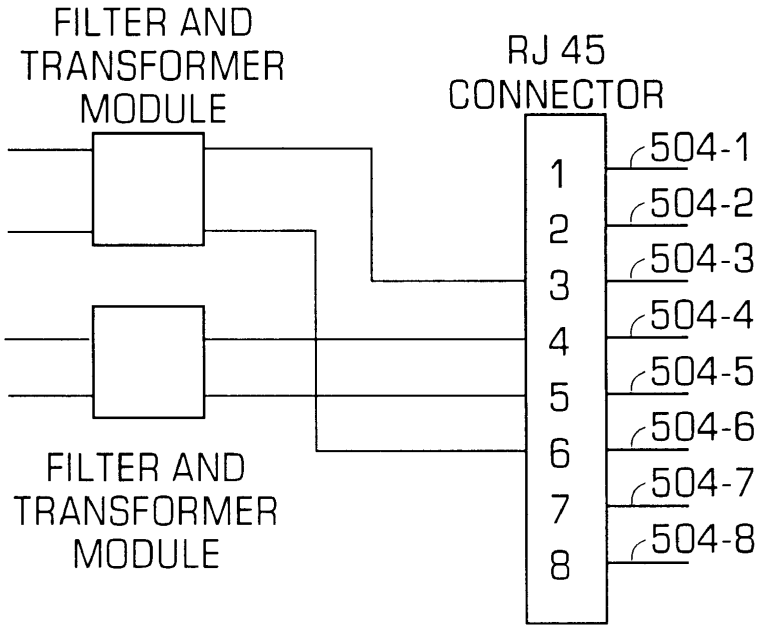
FILTER AND TRANSFORMER MODULE
RJ 45 CONNECTOR
1
2
3
4
5
6
7
8
504-1
504-2
504-3
504-4
504-5
504-6
504-7
504-8
FILTER AND TRANSFORMER MODULE

FIGURE 5c

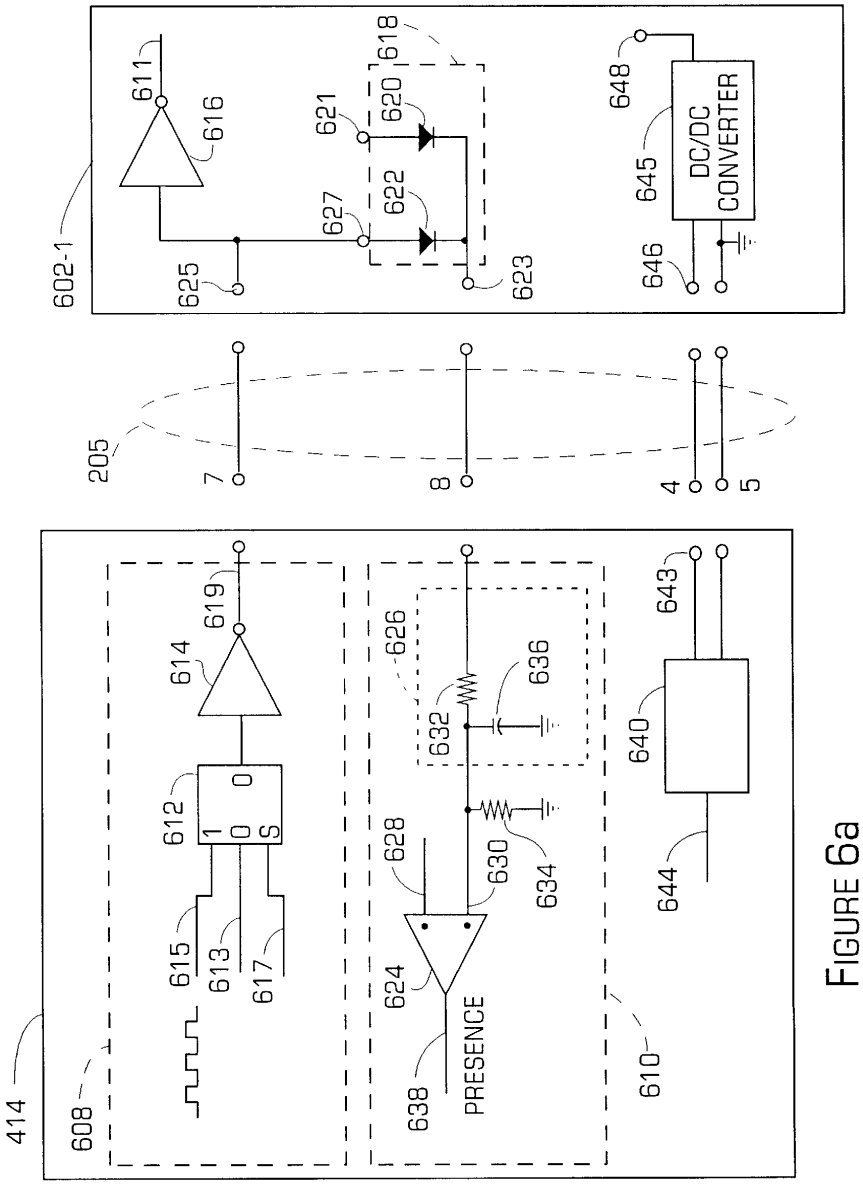
602-1
611
616
618
620
621
622
623
625
627
645
646
648
DC/DC CONVERTER
205
7
8
4
5
414
608
612
614
615
613
617
619
624
626
628
630
632
634
636
638
640
643
644
610
PRESENCE

FIGURE 6a

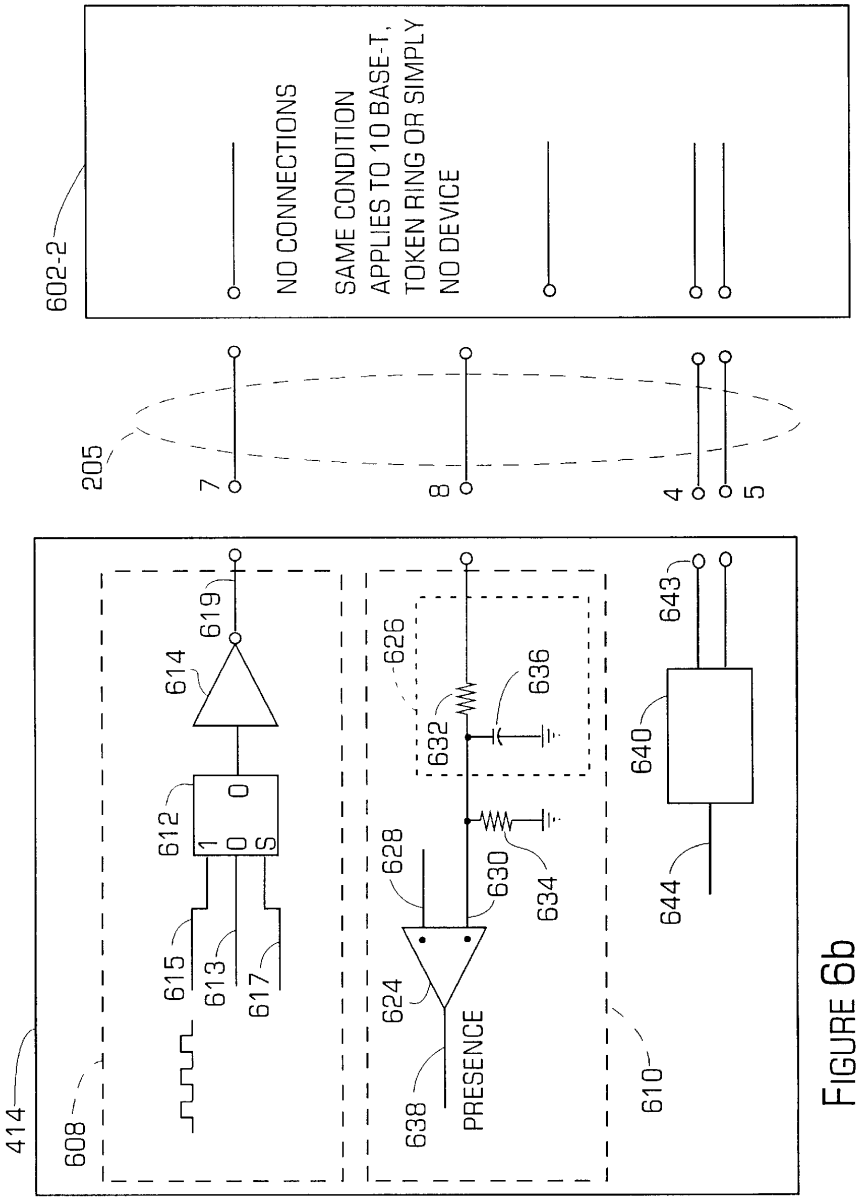
602-2
NO CONNECTIONS
SAME CONDITION
APPLIES TO 10 BASE-T,
TOKEN RING OR SIMPLY
NO DEVICE
205
7
8
4
5
414
608
610
619
614
612
615
613
617
626
632
636
628
630
634
624
638
PRESENCE
640
643
644

FIGURE 6b

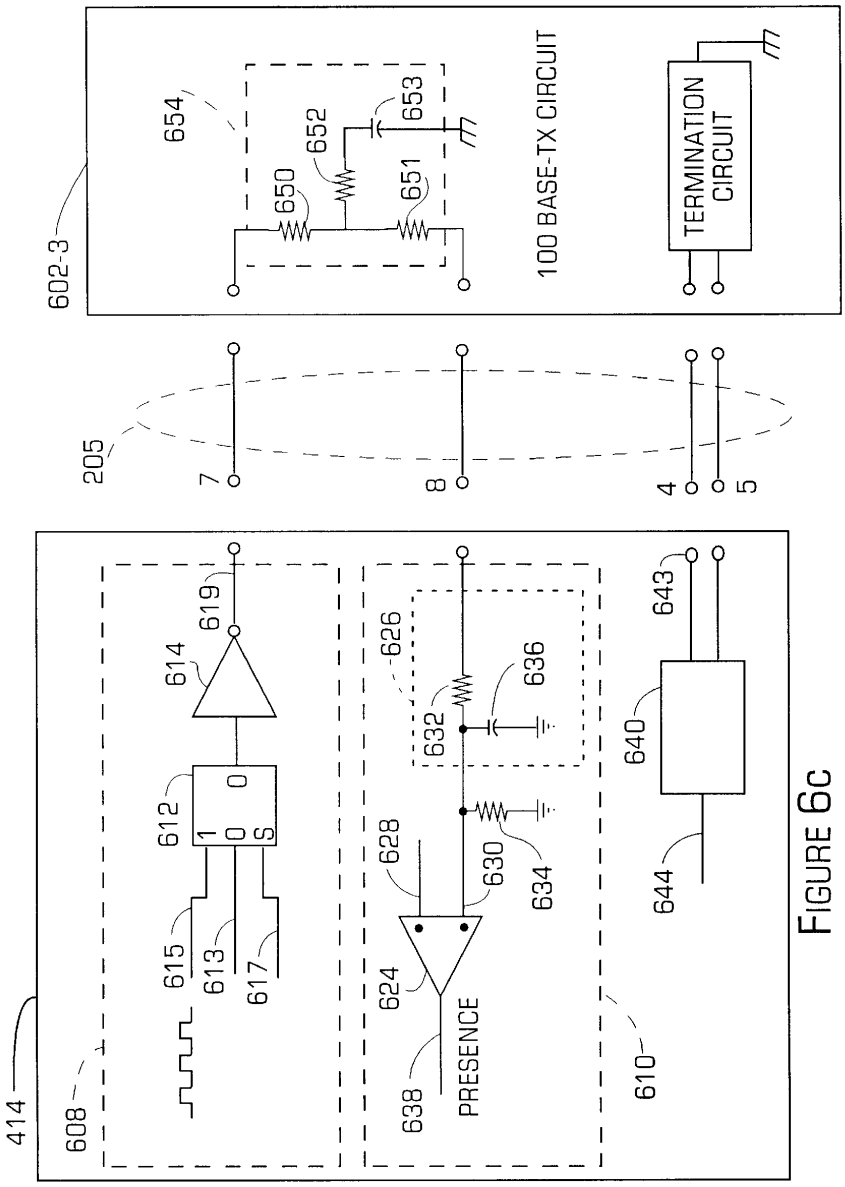
602-3
654
650
652
653
651
100 BASE-TX CIRCUIT
TERMINATION CIRCUIT
205
7
8
4
5
414
608
619
614
612
615
613
617
626
632
636
628
630
634
624
638
PRESENCE
610
640
643
644

FIGURE 6C

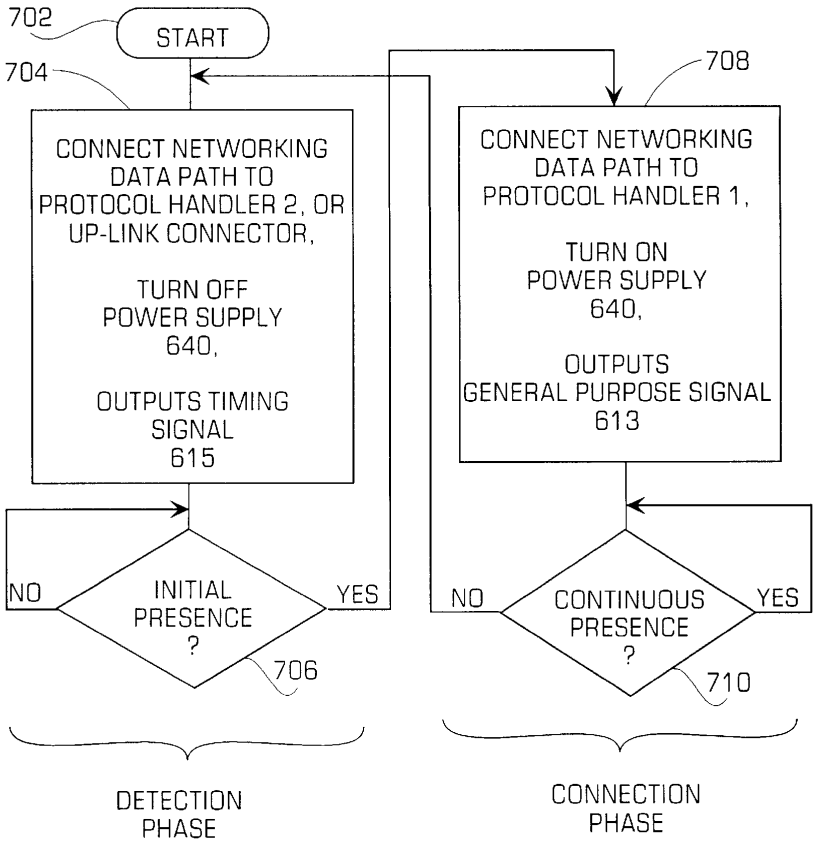
702
START
704
CONNECT NETWORKING DATA PATH TO PROTOCOL HANDLER 2, OR UP-LINK CONNECTOR,
TURN OFF POWER SUPPLY 640,
OUTPUTS TIMING SIGNAL 615
NO
INITIAL PRESENCE ?
YES
706
DETECTION PHASE
708
CONNECT NETWORKING DATA PATH TO PROTOCOL HANDLER 1,
TURN ON POWER SUPPLY 640,
OUTPUTS GENERAL PURPOSE SIGNAL 613
NO
CONTINUOUS PRESENCE ?
YES
710
CONNECTION PHASE

FIGURE 7

METHOD AND APPARATUS FOR DETECTING THE PRESENCE OF A REMOTE DEVICE AND PROVIDING POWER THERETO

FIELD OF THE INVENTION

This invention relates to networking systems, and more particularly, to network hubs and network interface adapters for automatically and continuously detecting the presence of a remote adapter coupled to a network twisted-pair cable, providing electrical power from a network hub to the remote adapter via the network twisted-pair cable, creating a multi-protocol networking system, and automatically connecting the remote adapter to the appropriate network hub.

BACKGROUND OF THE INVENTION

When personal computers became sufficiently small to allow user portability, it became necessary to provide connections between a portable computer and a computer network system. Traditionally, the portable computer uses a Personal Computer Memory Card International Association (PCMCIA) card for either an Ethernet or Token Ring network hard wire connection.

Recently, both portable computers and computer networks include infrared transceivers that allow wireless communication between the portable computer and the computer network for increased mobility. The computer network includes a protocol conversion bridge that converts communicated data between an infrared protocol and a protocol of the computer network. The protocol conversion bridge is coupled to a connector typically near the user's work station. The connector is then coupled to a network hub that is centrally located. A dedicated electrical power supply located near the bridge and the infrared transceiver provides electrical power to the protocol conversion bridge. The dedicated electrical power supply increases the system cost and requires an AC electrical power outlet.

Several systems provide both electrical power and signals over a common wire. For example, conventional telephone systems that use 48V on a telephone wire transmit both electrical power and communication signals over a single pair of lines. U.S. Pat. No. 5,444,184 describes a system that transmits both electrical power and low baud rate signals over the same twisted-pair wires. An attachment unit interface (AUI) in LAN applications uses dedicated wires in a cable to provide electrical power from a data terminal equipment (DTE) to an external medium attachment unit (MAU) which could be 50 meters away from the DTE. All of these systems simply provide electrical power over the wires. None of these systems checks or confirms the type of system connected thereto before supplying the electrical power.

Standard network protocols may be described in an Open System Interconnection (OSI) interface standard. One standard network protocol is the Ethernet which is described in IEEE standard 802.3 CSMA/CD, the subject matter of which is incorporated by reference in its entirety. Another standard network protocol is the Token Ring protocol which is described in ANSI/IEEE standard 802.5, the subject matter of which is incorporated by reference in its entirety. Both of these IEEE standards describe the media access control (MAC) layer and the physical layer of the OSI interface.

FIG. **1** is a pictorial view of the interface layers of the OSI standard. For simplicity, layer **3** through layer **7** of the OSI are combined as higher layers **139**. Layer **2** of the OSI

interface comprises the data link control (DLC) which includes a logical link control (LLC) layer **138** and a media access control (MAC) layer **134**. Physical layer **1** of the OSI interface comprises several sublayers including an attachment unit interface (AUI). The AUI is specified for a 10 Mb/s Ethernet but not for a 100 Mb/s Ethernet. A media attachment unit (MAU) **142** includes all of the physical sublayers other than signaling and coding sublayer. In a twisted-pair cable, the medium dependent interface MDI **144** is an RJ45 connector.

Many conventional network systems detect either layer **1** or **2** that the data terminal equipment **130** supports. This detection allows the network systems to share circuitry, connectors, and the medium so that the network systems may handle multiple protocols. By sharing, the cost of the DTE is reduced and the inconvenience or damage is minimized when misconnection is made to the wrong connector. However, all of these conventional systems presume that the DTE conforms to the IEEE Standards. Accordingly, these detection systems test only systems that comply with the IEEE Standards. Depending on the range of the layers that these systems want to detect, the systems require a different degree of involvement and resources includes central processing units, software codes and flow, system bus, memory, protocol handler, and transceivers. The system also is protocol dependent and the DTE must run only the protocols that the system can understand. The systems are not intended, nor do they function to detect an electronic system which is not in conformance with IEEE Standards.

U.S. Pat. No. 5,497,460 discloses a detection mechanism that allows two different media access control layer protocols (Ethernet and Token Ring) to share the same connector and medium in the OSI model of FIG. **1**. The detection scheme requires a sophisticated processing unit that issues a protocol dependent MAC frame and physical signals and compares a predefined status in memory to determine which one of the two presumed protocols runs on the twisted-pair cable. The detection scheme cannot communicate with any device which does not conform with Ethernet or Token Ring.

Under the same Ethernet MAC protocol, U.S. Pat. No. 5,410,535 describes a device that differentiates between mediums that the device is connected to so that the connected devices may share the same connector. The medium in this case could be a twisted-pair cable or AUI for other medium types. The control flow and logic manufactured in silicon are Ethernet physical layer dependent. U.S. Pat. No. 5,541,957 includes a separate physical layer logic to allow two Ethernet connections operating at different transfer rates to share the same connector.

U.S. Pat. No. 5,121,482 describes a device that detects the connected device independent of networking protocol. But its detection mechanism relies on the impedance of the data signal lines, its detection circuitry is also coupled directly to the data signal line, which may lead to interference or even corruption on the communication link when running the detection procedure.

It is desired to have a network system that recognizes remote devices connected to a connector of the network system in real time without intruding on the normal operation, provides appropriate electrical power as required without damaging the connected remote device, and automatically connects the device to a network hub running an appropriate protocol.

SUMMARY OF THE INVENTION

The present invention provides a detection circuit for detecting the presence of a remote device, which may or may not be a network device.

The present invention provides a system for controlling the application of electrical power to a detected device. The system includes a signal generator and a feedback analyzer. The signal generator receives a timing signal, a control signal, and a select signal. The signal generator provides a presence request signal in response to the select signal being in a first logic state and provides the control signal in response to the select signal being in a second logic state. The feedback analyzer is coupled to the detected device and provides a presence signal in response to the presence signal detected from the coupled device being of a predetermined type and being coupled to the output of the signal generator. The feedback analyzer provides the select signal in a second logic state when such a device is detected and provides the select signal of a first logic state when such a device is not detected. The feedback analyzer controls the application of electrical power to the coupled device of a predetermined type in response to the present signal.

The present invention provides a method for applying electrical power. At a first detection time, a first device is an initiator and applies a symmetric bipolar signal to a second device. At a second detection time, a feedback signal from the second device, based upon the signal supplied by the first device at the first detection time, triggers a comparator and indicates the successful connection of the second device to the first device. Alternatively, the second device may provide the feedback signal based on another electrical power source and not based on the symmetric bipolar signal. At a third detection time, the first device supplies a current limited electrical power to the second device. At a fourth detection time, the second device uses the electrical power gained from the first device to sustain its own operation also use it to derive the feedback signal to replace the original signal that is provided by the first device. At a fifth detection time, the first device is freed to remove the applied signal state in the first detection time, and use the same line for other purpose.

The present invention provides a network system that includes a plurality of user interface connectors and first and second network hubs. Each of the plurality of user interface connectors is adapted for coupling to a remote device. The first network hub communicates on a first operational protocol. The second network hub is coupled to the plurality of user interface connectors for communicating data between devices coupled thereto and is coupled to the first network hub. The second network hub identifies the operational protocol of a coupled device. When the identified operational protocol of the coupled device is a first operational protocol, the second network hub communicates data between the first and second network hubs. When the identified operational protocol of the coupled device is a second operational protocol, the second network hub communicates with said coupled device in a second operational protocol and identifies the presence of an adapter of a first type coupled to at least one of the plurality of user interface connectors and continuously provides electrical power to the adapter in response to the identified presence of the adapter. The second network hub stops providing electrical power to the adapter in response to no identified presence of the adapter.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is a pictorial view illustrating the interface layers of the open system interconnection model.

FIG. **2** is a block diagram illustrating a network system in accordance with the present invention.

FIG. **3** is a block diagram illustrating a network system in accordance with another embodiment of the present invention.

FIG. **4***a* is block diagram illustrating the network hub of the network system of FIG. **2** in accordance of the present invention.

FIG. **4***b* is a block diagram illustrating a network hub of the network system of FIG. **3** in accordance with another embodiment of the present invention.

FIG. **5***a* is a schematic diagram illustrating a conventional 10Base-T twisted-pair cable connection.

FIG. **5***b* is a schematic diagram illustrating a conventional 100Base-TX twisted-pair cable connection.

FIG. **5***c* is a schematic diagram illustrating a conventional Token Ring twisted-pair cable connection.

FIG. **6***a* is a schematic diagram illustrating a device presence detector that is coupled to a remote adapter of a first type in accordance with the present invention.

FIG. **6***b* is a schematic diagram illustrating a device presence detector coupled to a remote adapter of a second type in accordance with the present invention.

FIG. **6***c* is a schematic diagram illustrating a device presence detector coupled to a remote adapter of a third type in accordance with the present invention.

FIG. **7** is a flow diagram illustrating the operation of the device presence detector of FIGS. **6***a*–**6***c* in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The methods and systems of the present invention instantly and continuously detect the connection status during idle or normal operation of the systems. In one embodiment of the present invention, the system, without the presence of a detected network adapter, assumes a connected device uses a specific protocol, such as Ethernet or Token Ring. In another embodiment of the present invention, the network system is configured for an infrared (IR) adapter or Ethernet and not Token Ring. In such a system, a user connector of the system functions with either an IR adapter or an Ethernet adapter. In another embodiment of the present invention, the network system is configured for an IR adapter or Token Ring, and not for Ethernet. In such a system, a user connector of the system functions with either an IR adapter or a Token Ring adapter. In yet another embodiment of the present invention, the network system is configured for an IR adapter, Token Ring, and Ethernet.

More particularly, the network hub **202** (FIG. **2**) and the network hub **302** (FIG. **3**) of the present invention provide the electrical power to the detected device when the presence of the detected device is confirmed, and does not provide electrical power to the connector and the twisted-pair cable when either adapters of another type (such as Ethernet 10Base-T, 100Base-TX 100Base-T4, and Token Ring adapters) are connected or when no adapter is connected. Since the detected device receives the electrical power from the detecting device, a separate costly electrical power supply is not needed. The systems of the present invention reduce cost, and eliminate the massive interconnection wires and the electrical power plug in the office.

FIG. **2** is a block diagram illustrating a network system **200** in accordance with the present invention. The network system **200** includes a network **201** and a plurality of computers **212**. For clarity, only three computers, **212-1** through **212-3**, are shown. The computers **212** may be, for

example, workstations, portable computers, desktop PCs, or personal digital assistants (PDA).

The network **201** includes a network hub **202**, a plurality of twisted-pair cables **205**, a plurality of user interface connectors **204**, and an infrared adapter **206**. For simplicity and clarity, only four twisted-pair cables **205** and four user interface connectors **204** are shown. Also, for clarity, only one infrared adapter **206** is shown. Of course, the network **201** may include other numbers of network hubs **202**, hub user connectors **208**, twisted-pair cables **205**, user interface connectors **204**, and infrared adapters **206**.

The network hub **202** includes a plurality of hub user connectors **208** and an up-link connector **210**. The up-link connector **210** allows the network **201** to be connected to another network (not shown). The computer **212-1** includes a first interface **214** which is an infrared transceiver. The computer **212-1** communicates in a first protocol via the infrared transceiver **214** with the infrared adapter **206**. In one embodiment of the present invention, the first protocol is an infrared protocol. The computers **212-2** and **212-3** each include a second computer interface **216** that communicates in a second protocol. In one embodiment of the present invention, the protocol of the computer interface **216** is a 10Base-T or 100Base-TX protocol. In another embodiment of the present invention, the protocol of the computer interface **216** is a Token Ring protocol. In one embodiment of the present invention, the user interface connectors **204** are conventional RJ45 connectors.

The computers **212-2** and **212-3** may be physically connected to the network **201** via the hub user connectors **208** by physical wire connections, such as twisted-pair wires, between the respective second computer interfaces **216** and the user interface connectors **204**. The twisted-pair cable according to one embodiment of the present invention may be conventional category 3 or 5 twisted-pair cable. The wire may be disconnected at the computer **212-2** or **212-3** to allow the user to have portability of the associated computer **212**.

The network **201** communicates with the plurality of computers **212** via the user interface connectors **204**, using the infrared adapter **206** for wireless communication or using the computer interfaces **216** for wired communication. Specifically, the computer **212-1** communicates without wire and instead uses an infrared signal **215** communicated between the IR adapter **206** and the IR transceiver **214** of the computer **212-1** to communicate with the network **201**. The plurality of computers **212** may communicate with each other via the hub user connectors **208** or communicate with another network via the up-link connector **210**.

The network **201**, according to one embodiment of the present invention, is a Local Area Network (LAN) and may link to other networks.

The network **201** recognizes the protocol of computers **212** coupled to the network hub **202** and communicates with the computer **212** in the appropriate protocol. The network **201** provides electrical power to an IR adapter **206** when the IR adapter **206** is coupled to the network hub **202**, but does not provide electrical power for other adapter for other protocols. If the network **201** determines that another type of device other than an IR adapter **206** is coupled to a user interface connector **204**, the network **201** does not apply electrical power. The network system **200** provides wireless communication between computers **212** and the network **201**. Although the adapter **206** is described herein as operating with infrared, the adapter **206** may provide wireless coupling other than infrared, such as radio frequency. In such a case, the network system **200** may be modified to operate with these other means of wireless coupling or combinations thereof.

Specifically, the network hub **202** determines whether a remote device is connected to the user interface connectors **204** and determines the type of the remote device. If an infrared adapter **206** is connected to a user interface connector **204**, the network hub **202** provides electrical power to the IR adapter **206** in response to such detection, and stops providing electrical power to the IR adapter **206** in response to no detection of the IR adapter **206**.

A user may place a computer **212-1** in the vicinity of the IR adapter **206** and communicate with the network **201**. The IR adapter **206** provides bi-directional communication between the network hub **202** and an IR transceiver **214** of the computer **212-1**. The network hub **202** converts data from an IR protocol to the protocol of the network and vice versa. The network hub **202** also converts data from the protocol of either of the computers **212-2** or **212-3** into the protocol of the network and vice versa. Accordingly, the network hub **202** allows communication between any of the computers **212** by making the appropriate protocol conversion.

FIG. **3** is a block diagram illustrating a network system **300** in accordance with the present invention. The network system **300** includes a network **301** and a plurality of computers **212**. For clarity, only three computers **212-1** through **212-3** are shown. The computers **212-1** through **212-3** include respective computer interfaces **214**, **216**, and **318**. The computer interface **318** communicates in a third protocol.

The network **301** includes a first network hub **302**, a second network hub **303**, an optional third network hub **304**, a plurality of hub user connectors **204**, and first and second pluralities of twisted-pair cables **205** and **305**, respectively. The network **301** may include additional network hubs.

The network hub **302** includes a plurality of hub user connectors **308**, a plurality of pass-through connectors **309**, and an up-link connector **310**. The network hub **303** includes a plurality of hub user connectors **320** and an up-link connector **322**. The network hub **304** includes a plurality of hub user connectors **324** and an up-link connector **326**. The twisted-pair cables **305** couple the pass-through connectors **309** of the network hub **302** to respective hub user connectors **320** of the network hub **303**. Likewise, twisted-pair cables **305** couple the pass-through connectors **309** of the network hub **302** to respective hub user connectors **324** of the network hub **304**.

The network **301** communicates with the computers **212** in a manner similar to that described above in conjunction with the network **201** of FIG. **2**. However, communications within the network **301** differs from communication within the network **201**. Specifically, the network hub **302** processes data in an infrared protocol and passes through data in other protocols to the network hubs **303** and **304** for processing.

The first network hub **302** determines whether an infrared adapter **206** is coupled to a user interface connector **204**, and if such an IR adapter **206** is detected, the first network hub **302** converts the data between the protocol of the IR adapter **206** and the network hub **303** in a manner similar to that of the network hub **202** of FIG. **2**. However, if an IR adapter **206** is not detected, the first network hub **302** couples the corresponding hub connector **308** to the corresponding pass-through connector **309** for communication with either the second hub **303** or the third hub **304**. The network hub **302**

does not process the data from the adapter. Hence, the first network hub **302** merely passes data communicated between the second network hub **303** or the third network hub **304** and the computer **212** without further processing.

The network hub **302** implements a "pass through" of network data to allow the system to use conventional network hub **303** and/or **304** to support a standard network protocol such as Ethernet and/or Token Ring. In one embodiment of the present invention, the network **301** is coupled only to a computer that is in one of two protocols, for example, an infrared protocol and an Ethernet protocol. The present invention allows a user using an existing network hub to establish a multiple protocol network system **301** for infrared communication, Ethernet and/or Token Ring. Multiple networking protocols share the same connector **204**. Reusing existing conventional hubs and sharing the same connector reduces the system cost and increases the convenience of network access.

FIG. **4***a* is a block diagram illustrating the network hub **202** in accordance with the present invention. The network hub **202** includes a plurality of hub user connectors **208**, an up-link connector **210**, connection path **402**, networking data path **404**, detection path **406**, first and second protocol handlers **408** and **410**, respectively, networking data path **411** and **412**, a plurality of device presence detectors **414**, and select signal path **416**.

The networking data path **404** couples the hub user connector **208** to a first terminal of the connection path **402**. The detection path **406** couples the device presence detector **414** to the hub user connector **208**. The first and second protocol handlers **408** and **410**, respectively, are coupled to respective second and third terminals of the connection path **402**. The networking data path **411** couples the first and second protocol handlers **408** and **410**. The networking data path **412** couples the second protocol handler **410** to the up-link connector **210**. The select signal path **416** couples the device presence detector **414** to the connection path **402**.

The device presence detector **414** provides a presence request signal on the detection path **406** which is applied to the hub user connector **208** for determining whether an infrared adapter **206** is coupled to the hub user connector **208**. If an infrared adapter **206** is not coupled to the hub user connector **208**, the device presence detector **414** applies a signal to the select signal path **416** that selectively couples the hub user connector **208** through the connection path **402** to the second protocol handler **410** which communicates with a computer **212** connected to hub user connector **208** in the second protocol. Communication with another network (not shown) by the second protocol handler **410** is via the up-link connector **210**. On the other hand, if the infrared adapter **206** is coupled to the hub user connector **208**, the device presence detector **414** provides a select signal on the select signal path **416** to couple the hub user connector **208** through the connection path **402** to the first protocol handler **408**. The first protocol handler **408** may communicate with another network (not shown) via the networking data paths **411** and **412**, and the up-link connector **210**.

The first protocol handler **408** performs the conversion between the first protocol and the second protocol, and also performs repeater or switching functions of the first protocol among the user connectors **208** with IR adapters **206**. The second protocol handler **410** performs repeater or switching functions of the second protocol among up-link connector, the first protocol handler **408**, and user connectors **208**, without IR adapters **206**. Connection paths **402** provide networking paths between the first protocol handler **408** and user connectors **208** with IR adapters **206**, and the networking paths between the second protocol handler and user connectors **208** without IR adapters **206**. Networking path **411** allows both protocol handlers **408** and **410** to share the components for the up-link path.

FIG. **4***b* is a block diagram illustrating the network hub **302** in accordance with the present invention. The network hub **302** includes a plurality of hub user connectors **308**, a plurality of pass-through connectors **309**, an up-link connector **310**, connection path **402**, networking data path **404**, detection path **406**, protocol handler **408**, a plurality of device presence detectors **414**, select signal path **416** and networking data path **418**.

The networking data path **404** couples the hub user connector **308** to a first terminal of the connection path **402**. The detection path **406** couples the device presence detector **414** to the hub user connector **308**. The protocol handler **408** is coupled to a second terminal of the connection path **402**. The networking data path **418** couples the protocol handler **408** to the up-link connector **310**. The pass-through connector **309** is coupled to a third terminal of the connection path **402**. The select signal path **416** couples the device presence detector **414** to the connection path **402**.

The device presence detector **414** provides a presence request signal on the detection path **406** which is applied to the hub user connector **308** for determining whether an infrared adapter **206** is coupled to the hub user connector **308**. If an infrared adapter **206** is not coupled to the hub user connector **308**, the device presence detector **414** applies a select signal to the select signal path **416** that selectively couples the hub user connector **308** through the connection path **402** to the pass-through connector **309**. This allows communication between a network hub **303** or **304** with a computer **212** coupled to the hub user interface connector **308**. In this way, the network hub **302** merely passes data between the network hub **303** or **304** to the computer **212**. Such communication is in the protocol of the network hub **303** or **304**. On the other hand, if an infrared adapter **206** is coupled to the hub user connector **308**, the device presence detector **414** provides a select signal on a select signal path **416** to couple the hub user connector **308** through the connection path **402** to the protocol handler **408**. Communication between the network hub **302** and the computer **212** is an infrared protocol. The protocol handler **408** may communicate with another network (not shown) via the up-link connector **310**. The protocol handler **408** performs the conversion between the IR protocol and the second protocol, and also performs repeater or switching functions of the IR protocol among user connectors **208** with IR adapters **206**.

By way of background, local-area network (LAN) applications that include a twisted-pair cable as the media for data transfer typically use a standard RJ45 connector between components of the system, such as a networking port on PC, workstation, hub, bridge, or router. For example, a standard RJ45 connector is used with twisted-pair cable in Ethernet 10Base-T, 100Base-T, and Token Ring systems. The twisted-pair cable contains 6 wires (3 pairs) or 8 wires (4 pairs). The LAN of these systems typically follow the OSI physical layer standard of FIG. **1** above in which a twisted-pair cable carries electrical signals without electrical power. 10Base-T, 100Base-TX, and Token Ring use 2 pairs of the twisted-pair cable and leave the other unused wires open or grounded. In 10Base-T and 4/16 Mb Token Ring applications, the noise immunity is better, so the unused wires usually are left open.

FIGS. **5***a* through **5***c* describe the conventional twisted pair cable connection for 10Base-T, 100Base-TX, and Token Ring protocols, respectively.

FIG. **5***a* is a schematic diagram illustrating a conventional 10Base-T twisted-pair cable connection. The cable connection includes a plurality of lines **500-1** through **500-8**. The dash numbers of the reference numbers of the lines **500** correspond to the pin numbers that are assigned in the 10Base-T protocol by the IEEE Ethernet standard. Lines **500-1**, **500-2**, **500-3**, and **500-6** carry signals and couple to a transformer. Lines **500-4**, **500-5**, **500-7** and **500-8** are normally left open. These unused lines form an open circuit. The system may implement similar common ground circuitry as in 100Base-TX to reduce noise and improve signal quality.

FIG. **5***b* is a schematic diagram illustrating a conventional 100Base-TX twisted-pair cable connection. The cable connection includes a plurality of lines **502-1** through **502-8**. The dash numbers of the reference numbers of the lines **502** correspond to the pin numbers that are assigned in the 100Base-TX protocol by the IEEE Ethernet standard. Lines **502-1**, **502-2**, **502-3**, and **502-6** carry signals and couple to a transformer. Lines **502-4**, **502-5**, **502-7** and **502-8** are normally connected to ground through common mode termination resistors **505** and **507** and capacitor **509** in order to reduce the noise pick-up and injection to signal lines. These unused lines form a circuit having resistance between these lines. Although the IEEE 802.3 Standard for Ethernet recommends the value of such resistance, there is no guarantee what the actual resistance is. For example, some commercially available products do not include resistors **505**.

FIG. **5***c* is a schematic diagram illustrating a conventional Token Ring twisted-pair cable connection. The cable connection includes a plurality of lines **504-1** through **504-8**. The dash numbers of the reference numbers of the lines **504** correspond to the pin numbers that are assigned in the Token Ring protocol by the IEEE Token Ring standard. Lines **504-3**, **504-4**, **504-5**, and **504-6** carry signals and couple to a transformer. Lines **504-1**, **504-2**, **504-7**, and **504-8** are normally left opened. The system may implement similar common ground circuitry on unused lines to reduce noise and improve signal quality.

Table I describes the pin assignment of the user interface connector **204** for the 10Base-T, 100Base-TX, and Token Ring interfaces as described in connection with FIGS. **5***a* through **5***c*.

TABLE I

RJ45 pin at DTE of the station	l0 Base-T Interface	l00 Base-TX Interface	Token Ring Interface
1	TX+	TX+	Unused
2	TX−	TX−	Unused
3	RX+	RX+	TX+
4	Unused	Termination	RX+
5	Unused	Termination	RX−
6	RX−	RX−	TX−
7	Unused	Termination	Unused
8	Unused	Termination	Unused

The system of the present invention is independent of whether the unused lines in the network behave as an open circuit with high resistance or a circuit with low resistance termination circuit. By such recognition, the systems **200** and **300** of the present invention do not provide large currents that could potentially damage the resistor or transformer in the interface of the unused lines in an Ethernet protocol. Further, the systems **200** and **300** of the present invention provide such detection during functional operation of the system without interfering with the operation. Accordingly, the systems **200** and **300** of the present invention are able to detect a change in the connection during normal operation.

In order to perform detection that is continuous and does not interfere with the normal transmit and receive, the device presence detector **414** does not connect to the signal lines—twisted-pair cable line **1**, **2**, **3**, **6** in Ethernet protocol nor connect to line **3**, **4**, **5**, **6** in Token Ring protocol.

FIG. **6***a* is a schematic diagram illustrating the device presence detector **414** coupled to a remote terminal **602-1** which is an infrared adapter **206** through a twisted-pair cable **205**. The device presence detector **414** includes a signal generator **608**, a feedback analyzer **610**, and a electrical power supply circuit **640**. The signal generator **608** includes a multiplexer **612** and an interface driver **614**. A control signal **613** is applied to the first input of the multiplexer **612**. In one embodiment of the present invention, the control signal **613** is a general purpose signal. A low frequency timing signal **615** is applied to a second input of the multiplexer **612**.

In one embodiment of the present invention, the timing signal **615** is a symmetric clock signal with approximately a 50% duty cycle. A select signal **617** selects which of the applied signals the multiplexer provides to the output of the multiplexer **612**. The output of the multiplexer **612** is coupled to an input of the interface driver **614** which provides a presence request signal **619** at an output coupled to the twisted-pair cable **205**. The interface driver **614** may be, for example, an industrial standard RS232 driver.

The remote terminal **602-1** includes a receiver **616**, a diode circuit **618** and a DC-to-DC converter **645**. The diode circuit **618** includes a first diode **620** and a second diode **622**. A continuous presence signal **621** is coupled to the anode of the first diode **620**. The cathode of the first diode **620** is coupled to an output terminal **623** of the remote terminal **602-1**. The second diode **622** has an anode coupled to the common node formed by the input of the receiver **616** and an input terminal **625** of the remote terminal **602-1** and has an cathode coupled to an output terminal **623**.

The interface driver **614** of the signal generator **608** provides either the control signal **613** or the timing signal **615** to the receiver **616** and to the anode of the diode **622**. The receiver **616** may be, for example, an RS232 receiver. The output signal from the signal generator **608** is returned to the feedback analyzer **610** through the diode **622**.

The feedback analyzer **610** of the presence detector **414** includes a voltage comparator **624**, a low-pass filter **626**, a reference voltage **628** and a resistor **634**. The reference voltage **628** is lower than the continuous presence signal **621** used in the remote terminal **602-1** and lower than the peak output voltage from the interface driver **614**. The low-pass filter **626** includes a resistor **632** and a capacitor **636**. The resistor **634** connected in parallel with the capacitor **636** provides a discharge path for the capacitor **636**. The reference voltage **628** is coupled to the inverting input of the comparator **624**. The input of the low-pass filter **626** receives the feedback signal from the remote terminal **602-1** and filtered signal **630** is coupled to the non-inverting input of the comparator **624**. The diode circuit **618** provides the feedback signal to the terminal **623**. The feedback signal may be a presence signal. The presence signal may be an initial presence signal provided by the diode **622** or a continuous presence signal provided by the diode **620**. The initial presence signal is provided by diode **622** during the detection phase in response to the presence request signal **619**. During the connection phase, the diode **620** provides the continuous presence signal **621**.

During the detection phase, the timing signal **615** is selected and the presence request signal **619** is provided to the remote terminal **602-1**. The diode **622** in combination with the low-pass filter **626** forms a peak-detecting circuit in the feedback path. The filtered signal **630** is kept at the peak level of the presence request signal **619**. Because the filtered feedback signal **630** at the non-inverting input of the comparator **624** is higher than the threshold voltage **628** at the inverting input of the comparator **624**, the comparator **624** sets the presence signal **638**.

In one embodiment of the present invention, the system may include more than one types of remote terminal **602-1**, for example, **602-1***a* and **602-1***b*. In order to distinguish them, the feedback analyzer **610** includes additional voltage comparators coupled to different reference voltages. Accordingly, the systems **200** and **300** can support various combinations of protocols such as different versions of IR adapters or radio frequency adapters with Ethernet and/or Token Ring by using the same user interface connectors **204**.

For example, different voltages may be used for continuous presence signal **621** in both the remote terminal **602-1***a* and the remote terminal **602-1***b*. First, the continuous presence signal **621** in terminal **602-1***a* is set to 3VDC and in terminal **602-1***b* to 5VDC. And then in the feedback analyzer, the threshold voltage of the first comparator is set to 2V and the second comparator is set to 4V. When terminal **602-1***a* is attached to the system, the level of the feedback signal from terminal **602-1***a* triggers the first comparator, so the presence signal from the first comparator goes high. When terminal **602-1***b* is attached to the system, the feedback signal is high enough to trigger both comparators; thus the presence signals from both comparator goes high.

The voltage comparator **624** provides a presence signal **638** when the filtered signal **630** is above the threshold set by the reference voltage **628**, and is removed when the voltage falls below such threshold.

The feedback analyzer **610** provides the presence signal **638** when the detected remote terminal **602-1** is connected and does not provide the presence signal when either no remote terminal **602** is connected or the remote terminal **602** is not remote terminal **602-1** as described below in conjunction with FIG. **6***b* and **6***c*.

When the presence signal **638** is set, the device presence detector **414** starts to supply electrical power to the remote terminal **602-1** by activating output enable signal **644** of the electrical power supply **640**.

A DC-to-DC converter **645** in the remote terminal **602-1** converts the electrical power from the device presence detector **414** to a suitable voltage level **648** to sustain its own circuits, and also applies a continuous presence signal **621** coupled to the anode of diode **620**. This continuous presence signal **621** is sufficiently high to retain the presence signal **638** in an on state. At this point the same line that provides presence request signal **619** is no longer required and can be used for other functions. The select signal **617** of the multiplexer **612** may be automatically switched from the timing signal **615** to the control signal **613** then coupled to control signal **611** after presence is detected.

The operation is in a connection phase when the remote terminal begins to provide the continuous presence signal. At any time of the connection phase, if the remote terminal **602-1** is disconnected, the filtered signal **630** starts to discharge through the resistor **634**, and the presence signal **638** is disabled when the filtered signal **630** drops below the threshold. This causes the electrical power to be disconnected and the operation of the device presence detector **414** returns to the detection phase.

In one embodiment of the present invention, the feedback signal can be generated from the remote terminal with a self equipped electrical power. In one embodiment of the present invention, the remote terminal includes a battery (not shown) for generating a presence signal which is applied to the anode of the diode **622**. In such an embodiment, the battery adds to the cost of the system and may eventually discharge.

FIG. **6***b* is a block diagram illustrating the device presence detector coupled to a remote adapter of a second type in accordance with the present invention. The adapter **602-2** has no connections coupled to the output of the driver **614**, the input of the low pass filter **626** or the electrical power and ground terminals of the electrical power supply **640**. Accordingly, the presence request signal **619** cannot provide a feedback signal to the feedback analyzer **610**. Because no signal is received, the comparator **624** does not generate a presence signal **638** to indicate that an infrared adapter **206** is coupled to the device presence protector **414**.

FIG. **6***c* is a block diagram illustrating the device presence detector **414** coupled to a adapter **602-3** of a third type in accordance with present invention. The adapter **602-3** includes common ground circuitry **654** which contains first, second and third resistors **650**,**651** and **652**, respectively and a capacitor **653**. The common ground circuitry functions as a termination circuit. The first and second resistors **650** and **651**, respectively, are series connected between the input and output terminals of the adapter **602-3** which when connected to the device presence detector **414**, couple the output of the signal generator **608** and the input of the feedback analyzer **610**. The electrical power and ground terminals of the electrical power supply **640** are left open when connected to the adapter **602-3**. The third resistor **652** is coupled on a first end to the common node of the first and second resistor **650** and **651**, respectively. The other terminal of the third resistor **652** is coupled by the capacitor **653** to the ground. When the adapter **602-3** is coupled to the device presence detector **414**, the low-pass filter **626** of the feedback analyzer **610** blocks out the AC element of the feedback signal, and allows only the DC level of the feedback signal to pass. The DC level of the feedback signal may be near 0 volts, which is less than the reference voltage **628**, and thus the comparator **624** does not generate a presence signal **638**.

FIG. **7** is a flow diagram illustrating the operation of the device presence detector **414** in accordance with the present invention. The device presence detector **414** operates in a detection phase or in a connection phase. When the device presence detector **414** starts **702** detection, the device presence detector **414** enters the detection phase. The pass through connection path **402** is set to connect the networking data path from the hub user connector **208** to the second protocol handler **410** or up-link connector **210** or **310**. The electrical power supply **640** is turned off to remove applied electrical power from the remote terminal **602**. The select signal **617** is set to a first logic state to enable the multiplexer **612** to apply the timing signal **615** to the driver **614** and thus to the remote terminal **602**. The device presence detector **414** monitors **706** the presence signal. When the presence signal is on, the device presence detector **414** enters the connection phase. The networking data path is set to connect the hub user connector **208** to the first protocol handler by enabling the pass through connection path **402** to couple the hub user connector **208** to the first protocol handler **408**. The electrical power supply **640** is turned on **708** to apply electrical power to the remote terminal. The select signal **617** is set to a second logic state to command the multiplexor **612** to provide the control signal **613** to the driver **614** for

application to the remote terminal **602**. The device presence detector **414** monitors **710** the present signal, and remains in the connection phase until the present signal is not present (e.g., off). The device presence detector **414** reenters the detection phase and turns off the electrical power supply **640** and sets the network data path to the second protocol handler and proceeds as described above by connecting the hub users connectors **208** to the second protocol handler **410** or to the pass through connectors **309**.

Table II describes the signals present at the interface of the user interface connector **204** at the detection phase and at the connection phase.

TABLE II

Pin of the hub user connector 208 and 308	Interface at detection phase	Interface at connection phase
1	Pass through	Data signal
2	Pass through	Data signal
3	Pass through	Data signal
4	Pass through	Electrical power supply (VCC)
5	Pass through	Electrical power supply (GND)
6	Pass through	Data signal
7	Presence request signal	General purpose signal
8	Presence detection signal	Presence signal

The general purpose signal may be, for example, a detection signal, no signal, or another functional signal.

In the detection phase, the device presence detector **414** enables the pass through connection path to couple the hub user connector **208** to the second protocol handler **410** in the network hub **202** or to pass to the network hub **303** and **304** through the network hub **302**.

The network system of the present invention does not provide the electrical power to the interface connector unless a desired device is connected. With this system, the same interface connector supports a plurality of network protocols, such as Ethernet 10Base-T, 100Base-TX, or Token Ring. The desired device may run these or another kind of networking protocols.

Through a combination of circuitry and wiring arrangement, the present invention provides a low cost system that allows a first device, connected to one end of the twisted-pair cable, to detect a desired device connected to the other end of twisted-pair cable, and provide electrical power to it. The desired device receives the electrical power from the twisted-pair cable without physically attaching to the main body of the system for electrical power supply. Without physical attachment, the present invention provides a mobile computing solution for PDA and portable computers.

What is claimed:

1. A method of providing electrical power to a device upon the detection of the presence of the device communicating with a network system comprising the steps of:

providing a presence request signal by sending a bipolar timing signal to the device providing a response signal from the device;

detecting the presence of a device on a communication line by receiving the response signal from the device;

determining the type of device present;

providing electrical power to the device over the communication line in response to the type of device and the detected presence; and

stop providing the electrical power to the device when the presence of the device is no longer detected;

communicating with the device in a first protocol in response to detection of the presence of the device.

2. The method of claim **1** wherein:

the detected device indicates its continuous presence from the provided electrical power.

3. The method of claim **2** wherein the detected device includes an electrical power source and indicates its presence from the electrical power source.

4. The method of claim **1** wherein the presence request signal is a symmetric bipolar timing signal.

5. The method of claim **1** further comprising the steps of:

wireless communicating with the detected device.

6. A method according to claim **1** wherein the step of determining the type of device present further comprises the steps of:

providing electrical power to the device and communicating with the device in a first protocol in response to a detected first type of device; and

communicating with the device in a second protocol in response to a detected second type of device.

7. The method of claim **6** further comprising:

communicating data between another network hub and the device in response to a dedicated second type of device.

8. A network system comprising:

a plurality of user interface connectors each adapted for coupling to a remote device; and

a network hub coupled to the plurality of user interface connectors for communicating data between remote terminals coupled thereto, for identifying the operational protocol of a coupled device that indicates the type of device and communicating with said coupled remote device in said identified operational protocol, and for identifying the presence of an adapter of a first type coupled to at least one of the plurality of user interface connectors and continuously providing electrical power to the adapter according to the type of device in response to the identified presence of said adapter and stop providing the electrical power to the adapter in response to no identified presence of the adapter.

9. The network system of claim **8** wherein the operational protocol may be an Ethernet protocol.

10. The network system of claim **8** wherein the operational protocol may be a Token Ring protocol.

11. The network system of claim **8** wherein the operational protocol may be a wireless LAN protocol.

12. A method of providing electrical power to a device upon the detection of the presence of the device communicating with a network system comprising the steps of:

applying a presence request signal on a communication line;

monitoring the communication line for a presence signal;

receiving a presence signal from the device;

providing a control signal on a communication line when the presence signal is a continuous presence signal;

providing the presence request signal on a communication line when the feedback signal is not a continuous presence signal; and

providing electrical power to the device according to the type of device when the signal is a continuous presence signal.

13. A device according to claim **12** further comprising the step of receiving a device identifier that indicates the type of device.

14. A network system comprising:

a plurality of user interface connectors each adapted for coupling to a remote device;

a first network hub for communicating in a first operational protocol and for sending a bipolar timing signal to the remote device to receive a response signal from the device to indicate the presence of the adapter; and

a second network hub coupled to the plurality of user interface connectors for communicating data between devices coupled thereto and coupled to the first network hub, for identifying the type of device and the operational protocol of a coupled device, when the identified operational protocol of the coupled device is a first operational protocol, and communicating with said coupled device in a second operational protocol when the identified operational protocol of the coupled device is a second operational protocol, and for identifying the presence of an adapter of a first type coupled to at least one of the plurality of user interface connectors and continuously providing electrical power to the adapter in response to the identified presence of said adapter, and for stopping the providing of electrical power to the adapter in response to no identified presence of the adapter.

15. A system for controlling the application of electrical power to a detected device, comprising:

a signal generator having a first input for receiving a bipolar timing signal, having a

second input for receiving a control signal, and having a third input for receiving a select signal, and having an output for providing a presence request signal in response to the select signal being in a first logic state and for providing the control signal in response to the select signal being in a second logic state; and

a feedback analyzer having an input for coupling to a device and having an output for providing a presence signal in response to a presence signal detected from the coupled device the device being detected as a particular type of device, and being coupled to the output of the signal generator, for providing the select signal in a second logic state when such a device is detected and providing a select signal of a first logic state when such a device is not detected, and for controlling the application of electrical power to the coupled device according to the type of device in response to the presence signal.

16. A detection circuit configured to detect the presence of a remote device communicating with a computer network system comprising:

a signal generator configured to generate a bipolar timing signal and to send the signal to a device communicating with the network system;

a feedback analyzing circuit configured to receive a signal sent by the device in response to the bipolar timing signal sent by the signal generator to determine whether the device is present in the system;

a detection circuit configured to determine the mode of operation under which the device operates.

17. A detection circuit according to claim **16** further comprising:

a power generator configured to deliver power to the device according to the device's operational mode of operation.

18. A detection circuit according to claim **17**, wherein the first mode of operation indicates that it is safe to send power to the device and wherein the second mode of operation indicates that it is not safe to send power to the device.

* * * * *

CERTIFICATE OF SERVICE

I, Rose E. Olejniczak, being duly sworn according to law and being over the age of 18, upon my oath deposes and states that:

Counsel Press was retained by Flachsbart & Greenspoon, LLC, Attorneys for Plaintiff-Appellant, Chalumeau Power Systems LLC, to print this document. I am an employee of Counsel Press.

On February 5, 2015, Flachsbart & Greenspoon authorized me to electronically file the foregoing Brief of Plaintiff-Appellant Chalumeau Power Systems LLC (Confidential and Non-Confidential Versions) with the Clerk of the Federal Circuit using the CM/ECF System, which will serve e-mail notification of such filing to all counsel who are registered as CM/ECF users.

On February 5, 2015, two copies Brief of Plaintiff-Appellant Chalumeau Power Systems LLC (Confidential Version) will be sent via prepaid Federal Express overnight delivery addressed to:

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Upon acceptance by the Court of the e-filed document, six paper copies of the Brief of Plaintiff-Appellant Chalumeau Power Systems LLC, confidential version, will be filed with the Court, via Federal Express, within the time provided in the Court's rules.

/s/ Rose E. Olejniczak
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CERTIFICATE OF COMPLIANCE

This brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B). This brief contains 13,139 words, excluding the parts of the brief exempted by Fed. R. App. P. 32(a)(7)(B)(iii) and Fed. Cir. R. 32(b).

The brief complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because this brief has been prepared in a proportionally-spaced typeface using Microsoft Word 2007 in 14-point Times New Roman type.

/s/ Robert P. Greenspoon